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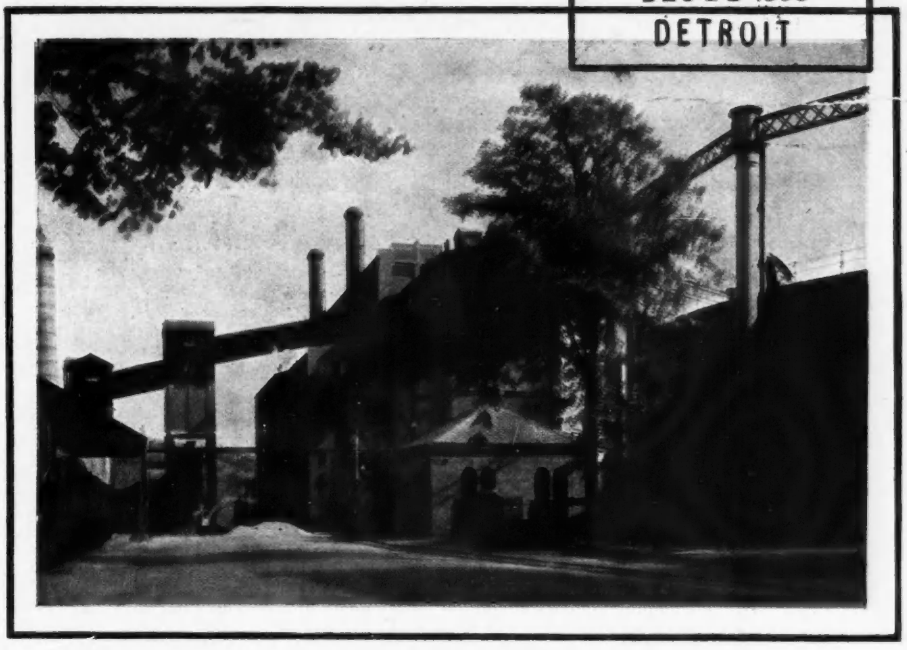
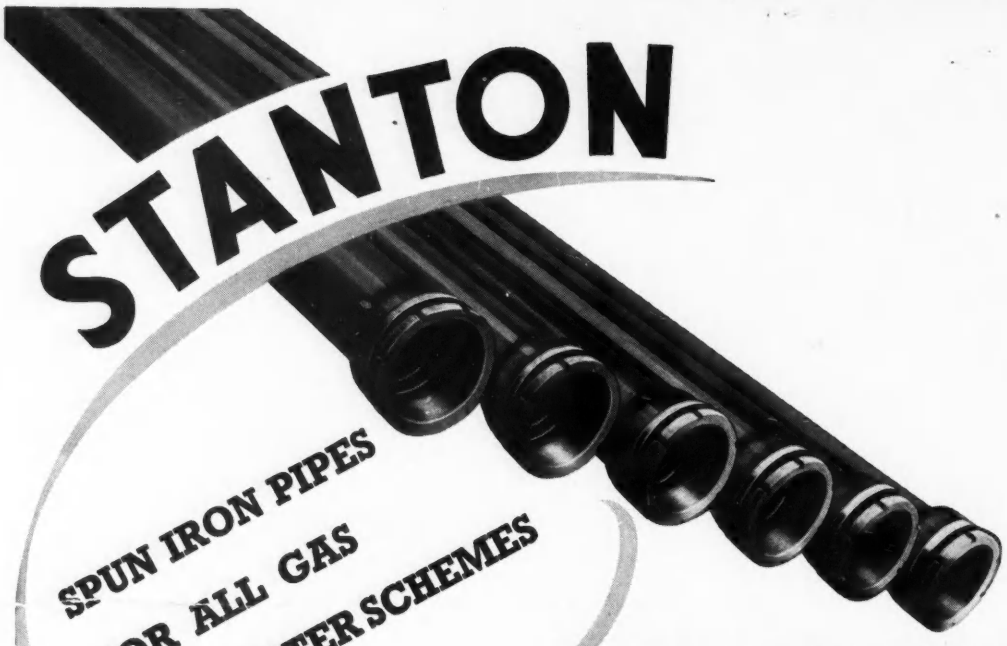


The Continuous Vertical Retort House at the Gloucester Undertaking of the South Western Gas Board enclosing the first installation of 12–82" Lambent Heated Retorts (1943) and, in the extension behind, the new Installation of 16–82" Lambent Heated Retorts.

W-D

L RETORT AND OVEN CONSTRUCTION CO. (1920) LTD.
ROAD, LONDON, S.W.3
Telegrams: Retortical, Southkens, London

STANTON



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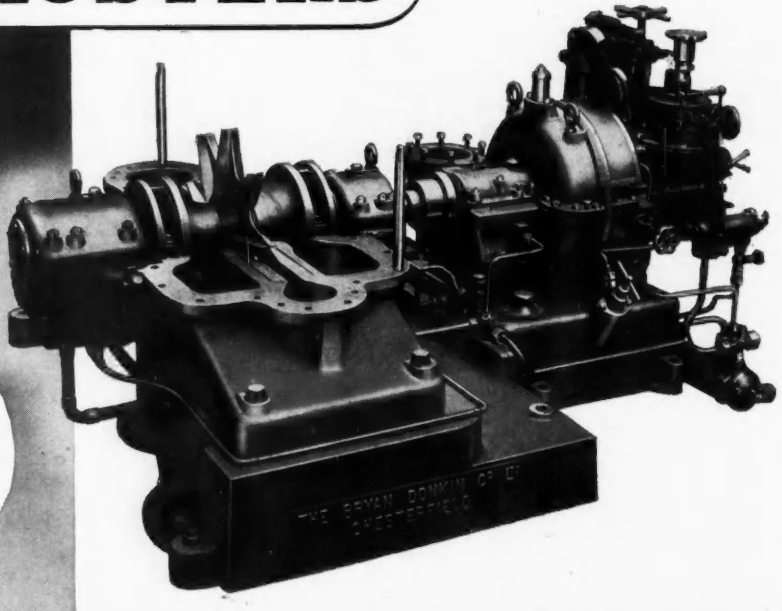

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Double Inlet Star Type-Fan. Capacity 10,000,000 cubic feet of Gas per day, against 72" W.G. running at 8,700 revs. per minute driven by Steam Turbine. Dimensions 6' wide 8' long, 4' high.

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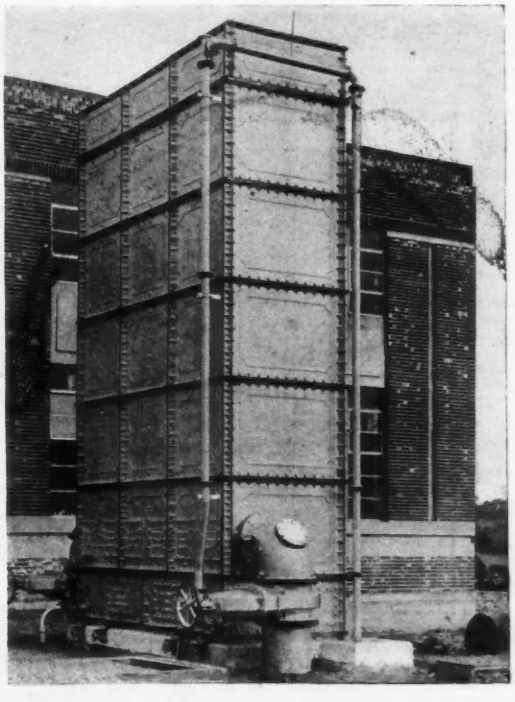

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Purifiers by Claphams

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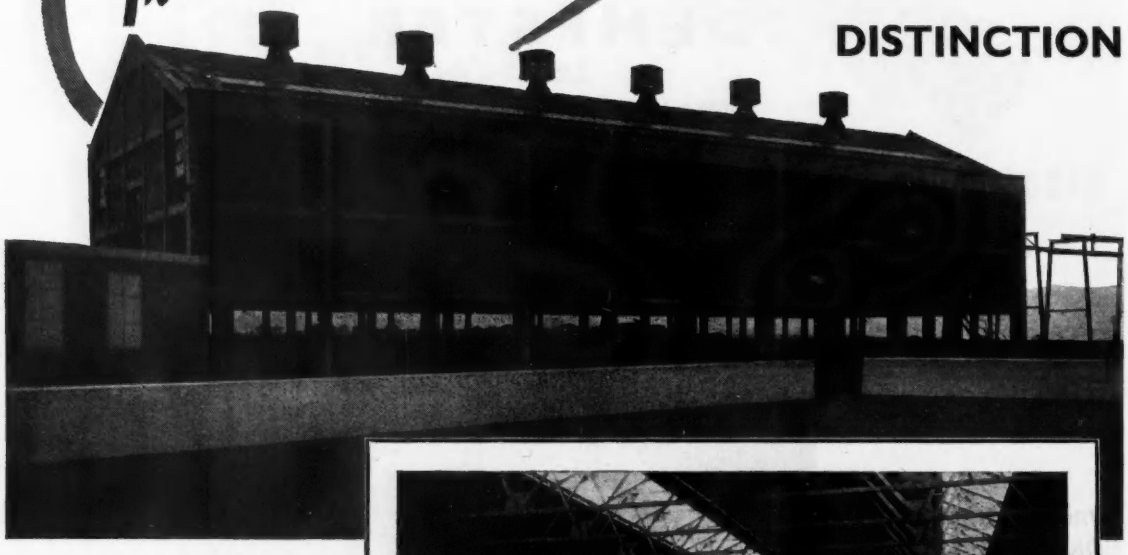

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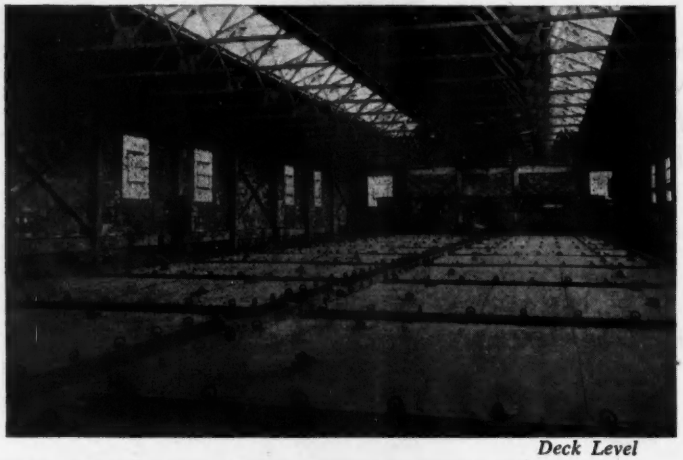

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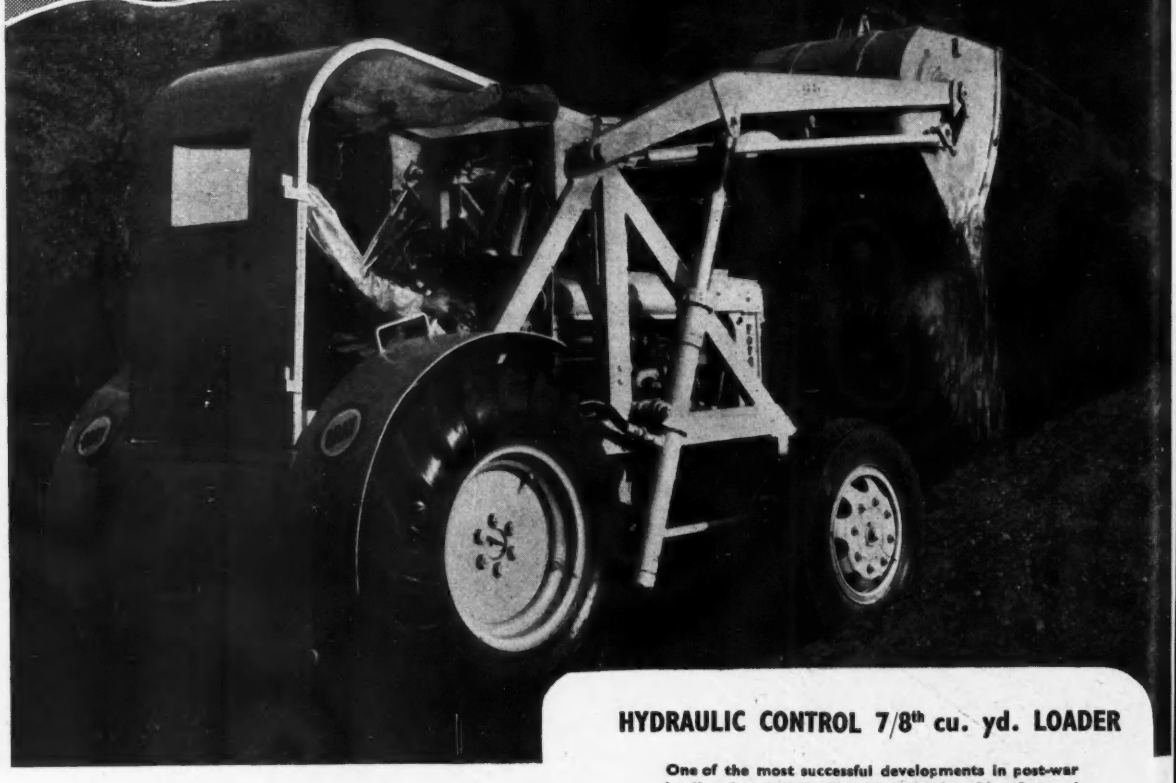

HYDRAULIC CONTROL 7/8th cu. yd. LOADER

One of the most successful developments in post-war loading shovels is the Bray Hydraloader. Manufactured with a minimum weight in ratio to giving a maximum bucket capacity, the Hydraloader reduces excavating and loading costs. Advanced design, low price and first-class performance is making the nation's loader users buy more Hydraloaders. In 1950 Britain's best loader—prove it yourself by arranging a demonstration at once.

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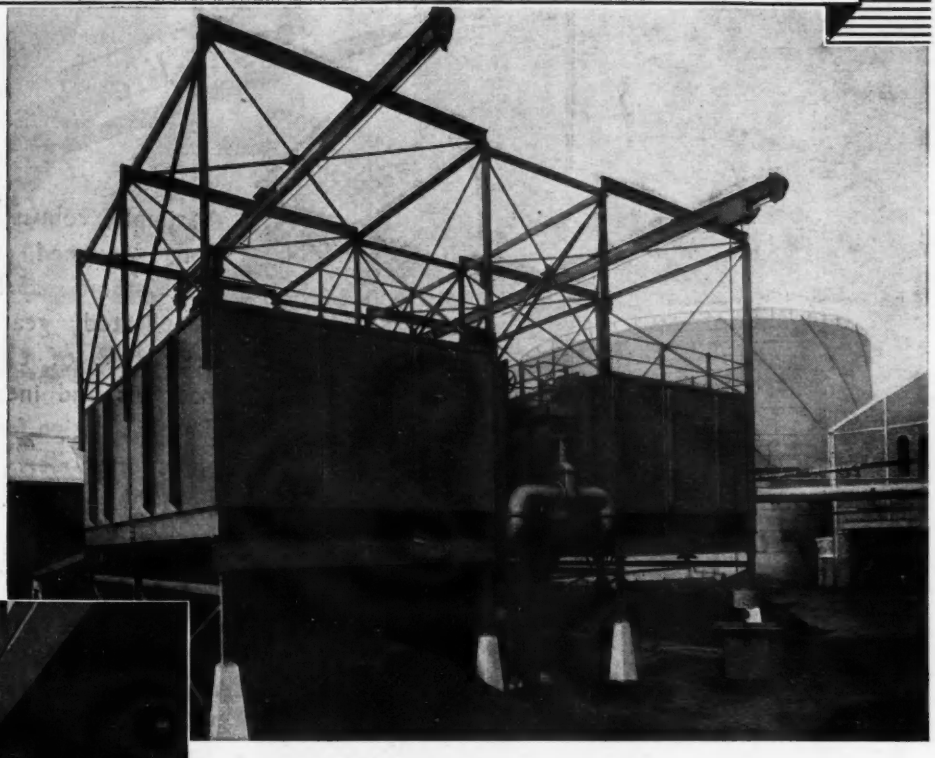
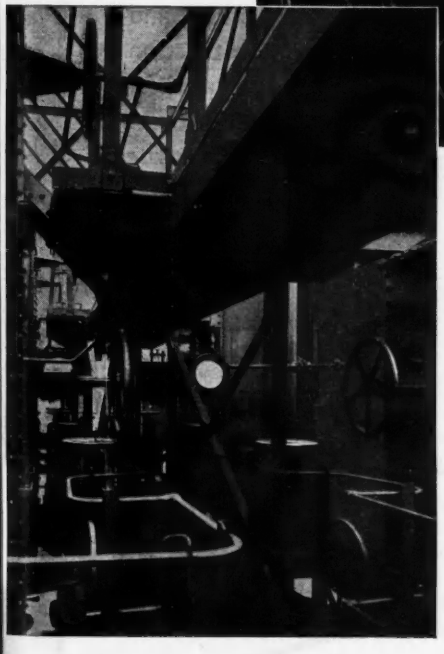
Whessoe Purifiers





The illustrations show a 4-box set of Whessoe purifiers, each 18 ft. x 18 ft. x 10 ft., with a capacity of 1½ million cu. ft. per day, for the Ormskirk Undertaking of the N.W. Gas Board.

This is a simple installation with modern features—deep, welded mild-steel, overground boxes, with divided and reversible gas flow. Simple and efficient charging is provided by Morris 3-ton skips, operated by pulley-blocks, with hoisting and traversing controlled by an electrically driven winch, which is also arranged to provide for cover-lifting.

WHESSOE LIMITED DARLINGTON

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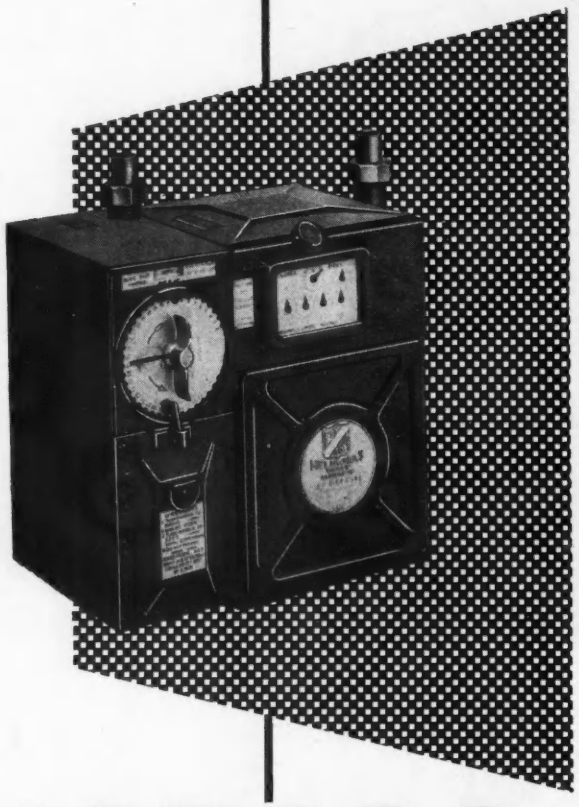
Designed to ensure long life



A simple, robust construction, designed to avoid troublesome springs and complicated gears. Constructed of the finest materials and incorporating the best design features employed in modern Gas Meter Practice.

A specification detailing the special features of the Prepayment mechanism and valve grating construction can be obtained on application to either the Treforest Factory or Head Office at the Airport, Walsall.

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domestic and Industrial

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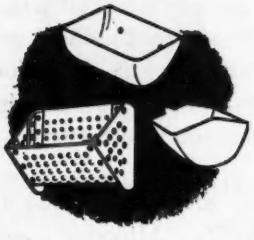

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ALUMINIUM LOCKERS

In view of the present restricted supplies of Steel Sheet these well-known Harvey Lockers are now fabricated of Aluminium Alloy Sheet, but to maintain their strength, retain their Steel Legs and Posts. Made in units of three lockers, in three styles, one-door, two-door and four-door they are all 6 ft. high by 1 ft. square with exterior stoved Olive Green Enamel.

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THE FORESIGHT OF NATURE

The swan is a vegetarian bird and, as the vegetable matter on which he lives consists of water weeds, he has been given a long, flexible neck to enable him to thrust his head far down under the water and pluck up the weeds with his bill.

The remarkable elasticity of the swan's neck and its astute design remind us that Nature always meets the need in a practical way—as does "Multitest", the gas meter diaphragm that is scientifically designed to give immediate response to the slightest change in the flow of the gas stream. It is the consistent pliability of the leather that makes "Multitest" so sensitive—a suppleness which, combined with strength and durability, is the direct result of years of experiment and research. In addition to scientific processing treatment, including impregnation with a highly protective oil dressing, severe tests are applied at all stages of manufacture. The high standard attained ensures that "Multitest" has that smooth easy action which keeps pressure absorption down to the minimum and maintains accuracy and efficiency at the highest levels.

Gas meters and governors are only as good as their diaphragms—so specify "Multitest" and make sure of a precision-cut diaphragm specially designed to meet the needs of every size and type of meter.

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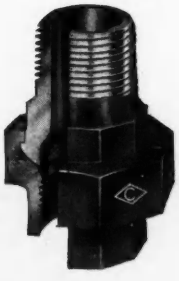
CMM35

FROM THE RAW MATERIAL TO THE FINISHED ARTICLE

PIPE FITTINGS

Crane pipeline equipment, which is made to British standards and has many exclusive features, includes pipe fittings of every type and size — Cast Iron Flanged and Malleable Iron Screwed Fittings (banded or plain). The strictest control is exercised throughout every production stage from laboratory testing of raw materials to the final finishing operations and tests for strength and flawlessness.



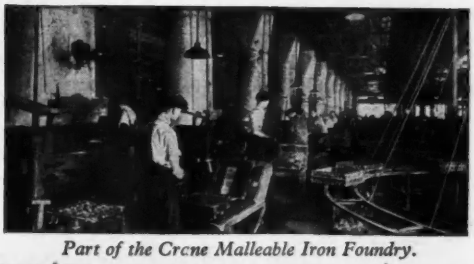
TAPER THREADS

To ensure stronger and more reliable joints Crane Malleable Iron Fittings have taper threads which engage the pipe in a full metal-to-metal joint.

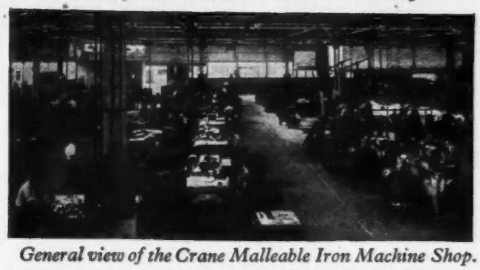
OTHER PIPELINE FITTINGS Valves of every type for water, steam, oil and air; unions, expansion joints, flanges; pipe hangers and brackets; steam traps, fabricated pipework, cocks, gun metal screwed fittings etc.

CRANE

FITTINGS FOR ANY PIPELINE



Part of the Crane Malleable Iron Foundry.



General view of the Crane Malleable Iron Machine Shop.

A close-up view of a three-way tapping machine.

Each individual fitting is tested for soundness.

CRANE LTD., 45-51 LEMAN STREET, LONDON, E.1. Works : IPSWICH
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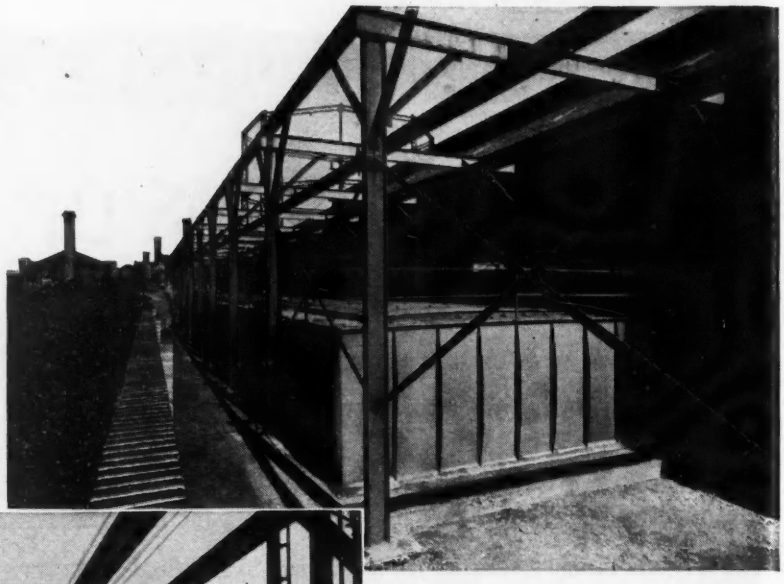
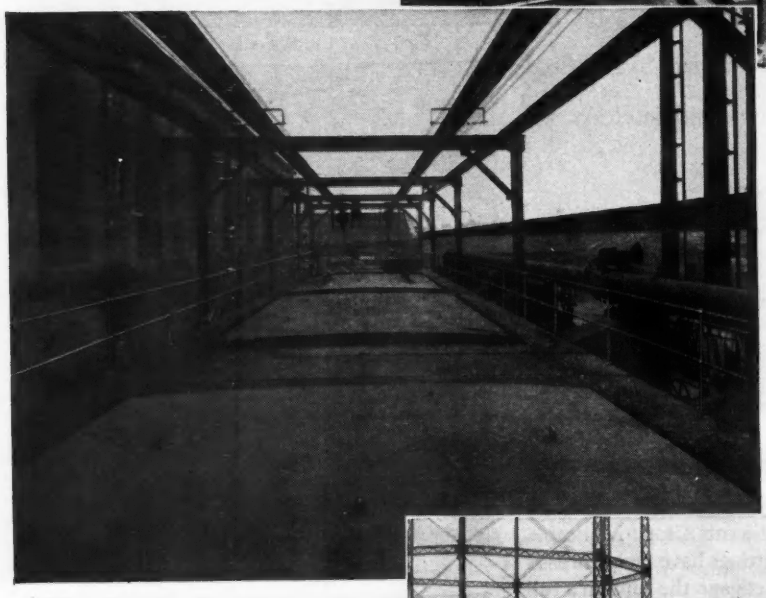
MODERN PURIFIER INSTALLATIONS by OXLEY





Above :

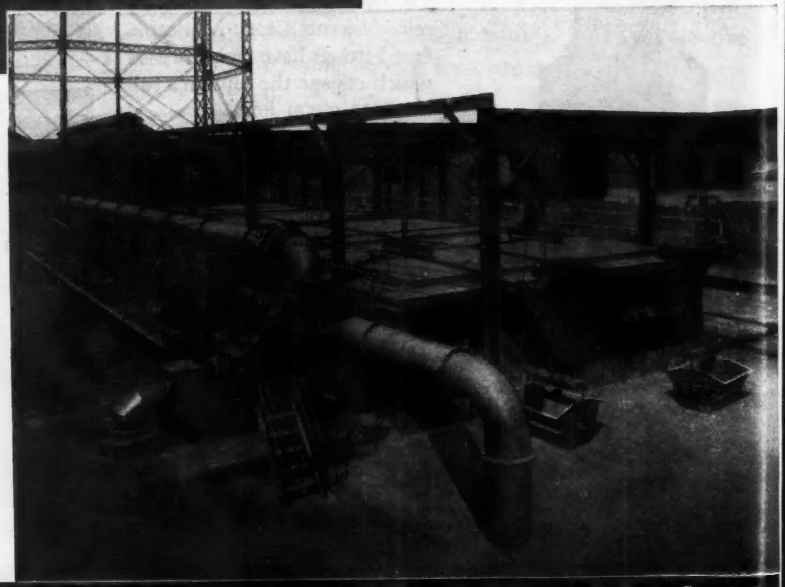
Mild steel welded purifiers, 40' by 20' by 8'

Left :

View of gangway plates showing catch box and runway structure.

Below :

Mild steel bolted purifiers in line each 24' by 32' by 10'



These purifiers, built for the Newcastle Division of the Northern Gas Board, typify the up-to-date installations which OXLEY design, fabricate and erect for the gas industry.
Important features are the clean lines and smooth surface of gangways and covers which make cleaning an easy job.

OXLEY ENGINEERING CO. LTD., HUNSLET, LEEDS 10

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Telegrams : Oxbros, Leeds, 10

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W. 117

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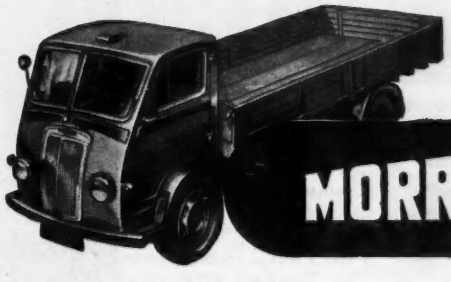
MORRIS - COMMERCIAL SERVICE keeps your vehicle in first-class condition all the time. It offers genuine re-conditioned units and service parts made to the same specifications as those originally built into your Morris-Commercial. It offers the skill and know-how of factory-trained mechanics. And all this at reasonable rates based on standard times. You know beforehand how long the job will take and quite apart from the job being done *better*, it is done more economically, more efficiently and in the right spirit.



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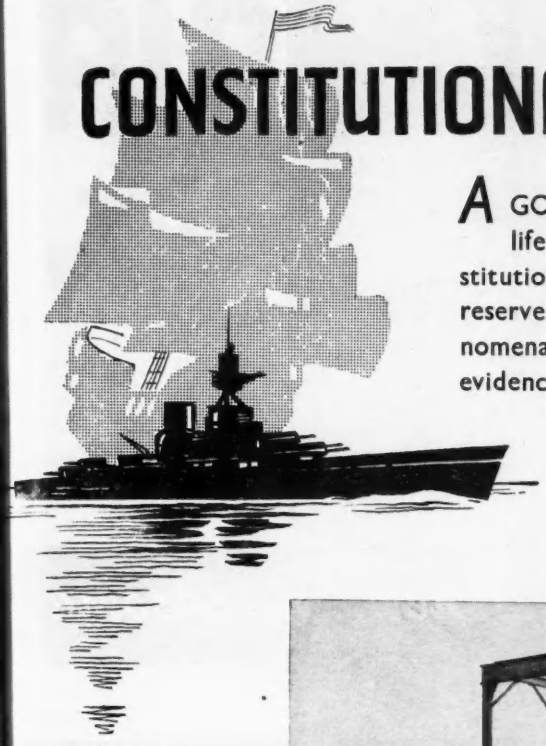

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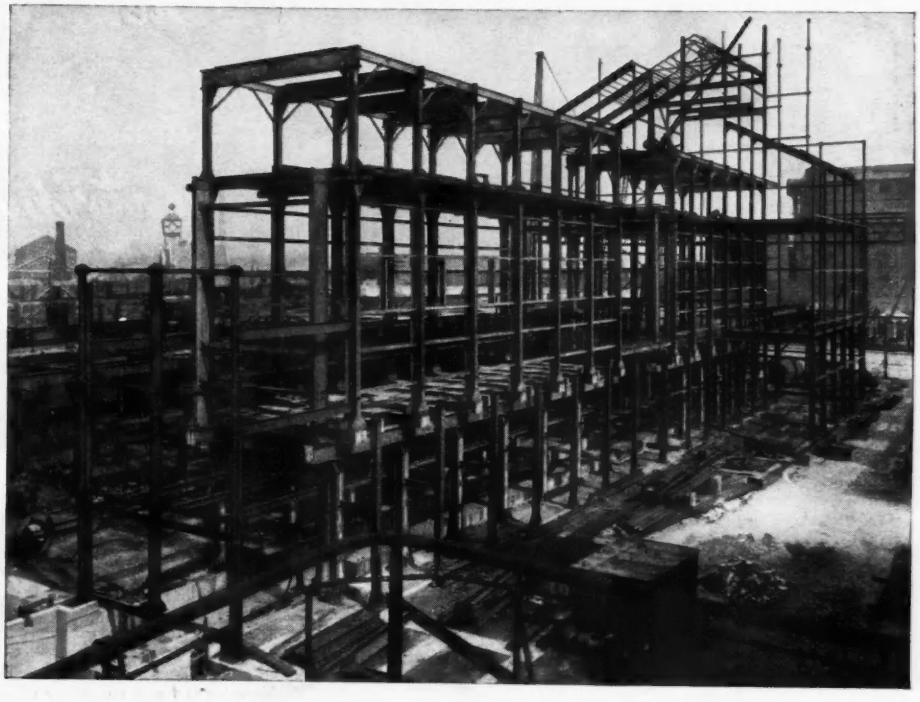
This well-known Drakes' sturdiness matched with technical excellence of design has become the standard of comparison in the Gas Industry for a century plus.



ANCHESTER
RADFORD ROAD

retouched photograph owing Bench structures r 4½ million cu. ft. per y Continuous Vertical ant in course of erec- n. Three Mechanical oducers are in the ackground.

Telephone: Halifax 4701 P.B.Ex.

Telegrams: Draketed, Halifax.

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Thousands of tons of "Bitumastic" 70 B Enamel have been used to protect gas and oil pipe lines in America and the Middle East. Its outstanding anti-corrosive properties have been demonstrated on pipe lines all over the World.

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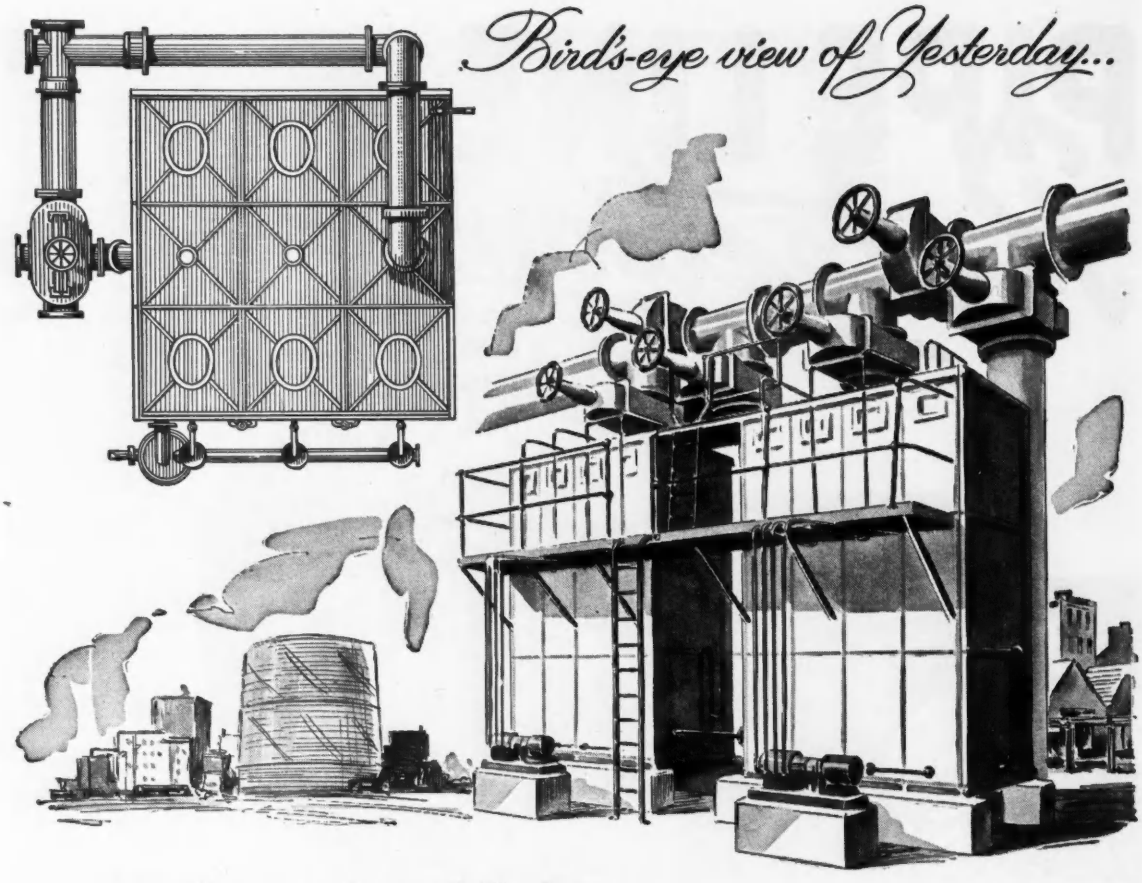
AGENTS THROUGHOUT THE WORLD H44



—worm's eye view of Today

Much of the history of gas-washing practice had been written before the early-type washer seen in plan in the engraving was put into service. In this—the first multi-stage washer—the usual oblong vessel was divided into independent sections to improve the overall efficiency of the plant. Multi-stage washers are widely used to-day since the flexibility of design enables them to be used for widely differing conditions. The Balfour multi-stage washer shown can be designed to any required capacity. It has been used for ammonia and benzole washing, and with slight modifications can be adapted for gas dehydration and napthalene removal.

The rule of thumb methods of the past for calculating the type and size of ammonia washer required are no longer suitable for modern conditions. Accurate data relating to the ammonia content, the percentage of carbon dioxide present, and the probable temperature of the input gas must be available. Static Washers, Tower Scrubbers, Livesey, Rotary and Centrifugal Washers all have their place in the modern gas works, and operating conditions must be carefully studied in order to decide on the most suitable installation.

The Balfour Organisation with its vast experience of gas engineering practice offers an unparallelled service for the design, manufacture and installation of complete gas purification plant.

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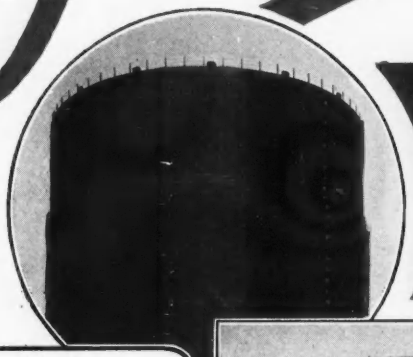
SIMON ENGINEERING GROUP

STOCKPORT ENGLAND

Gasholders 1864-1950



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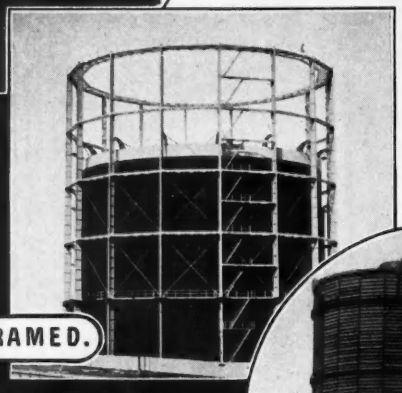
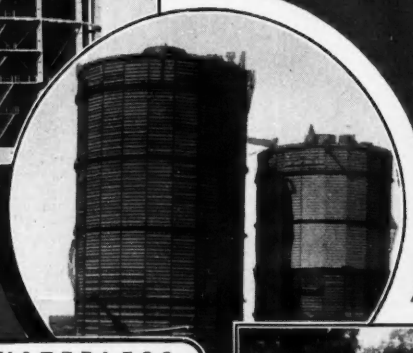
We have OVER 80 YEARS' EXPERIENCE OF GASHOLDER DESIGN AND CONSTRUCTION



GUIDE FRAMED.



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P 59

Here's what we mean by
ACCESSIBILITY

The photograph shows how the COMPLETE Valve Assembly can be removed or interchanged whilst the Governor is in the line.

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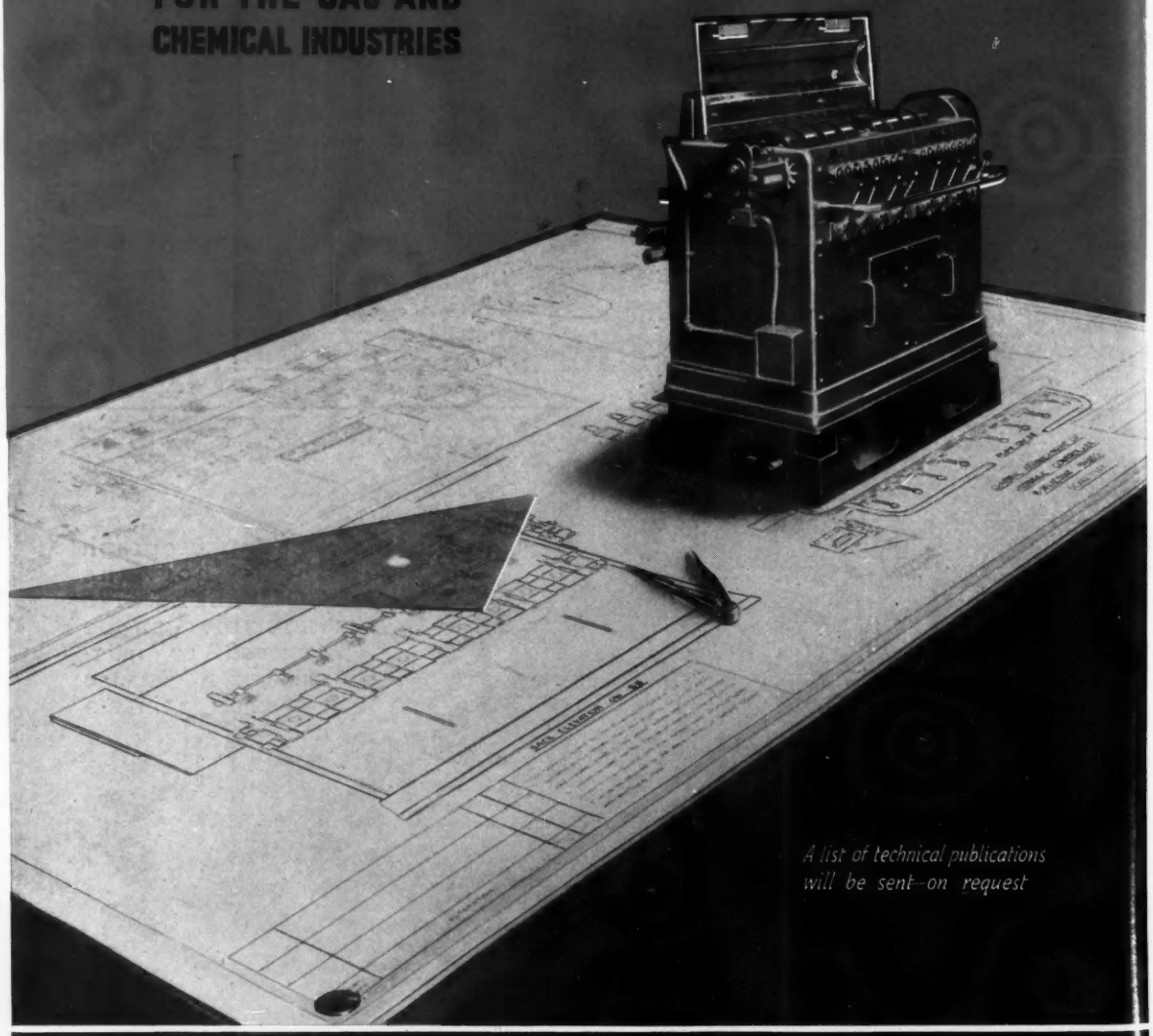

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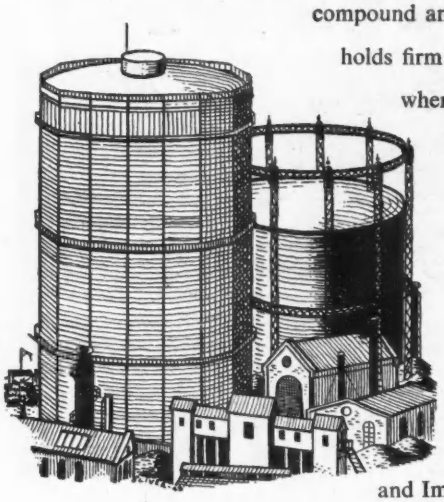

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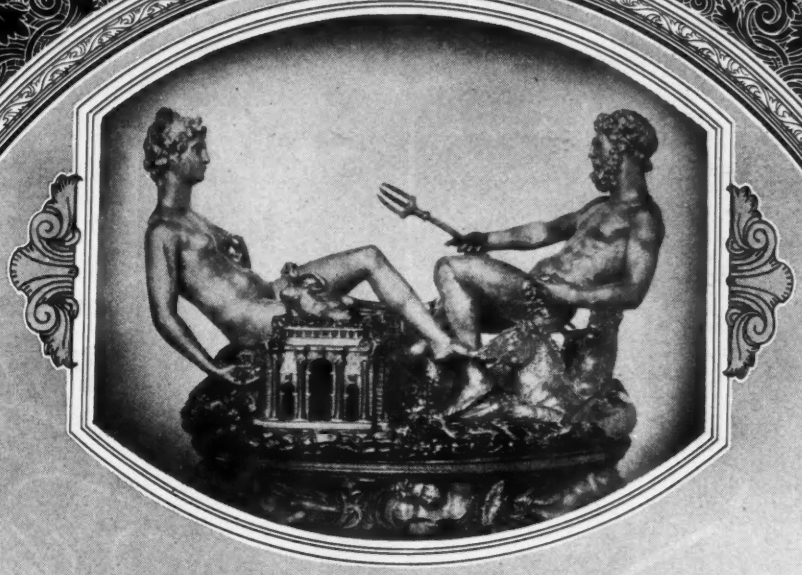

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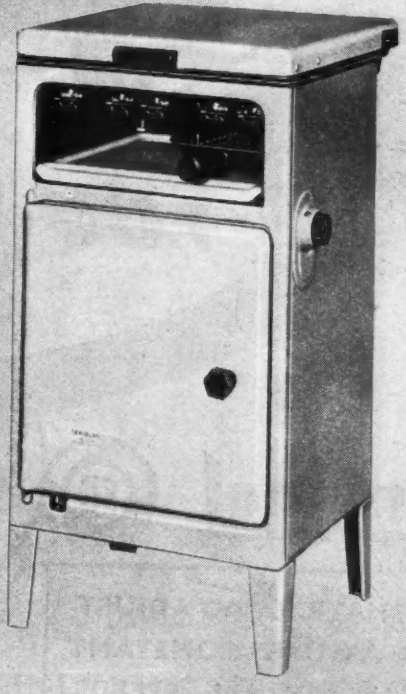

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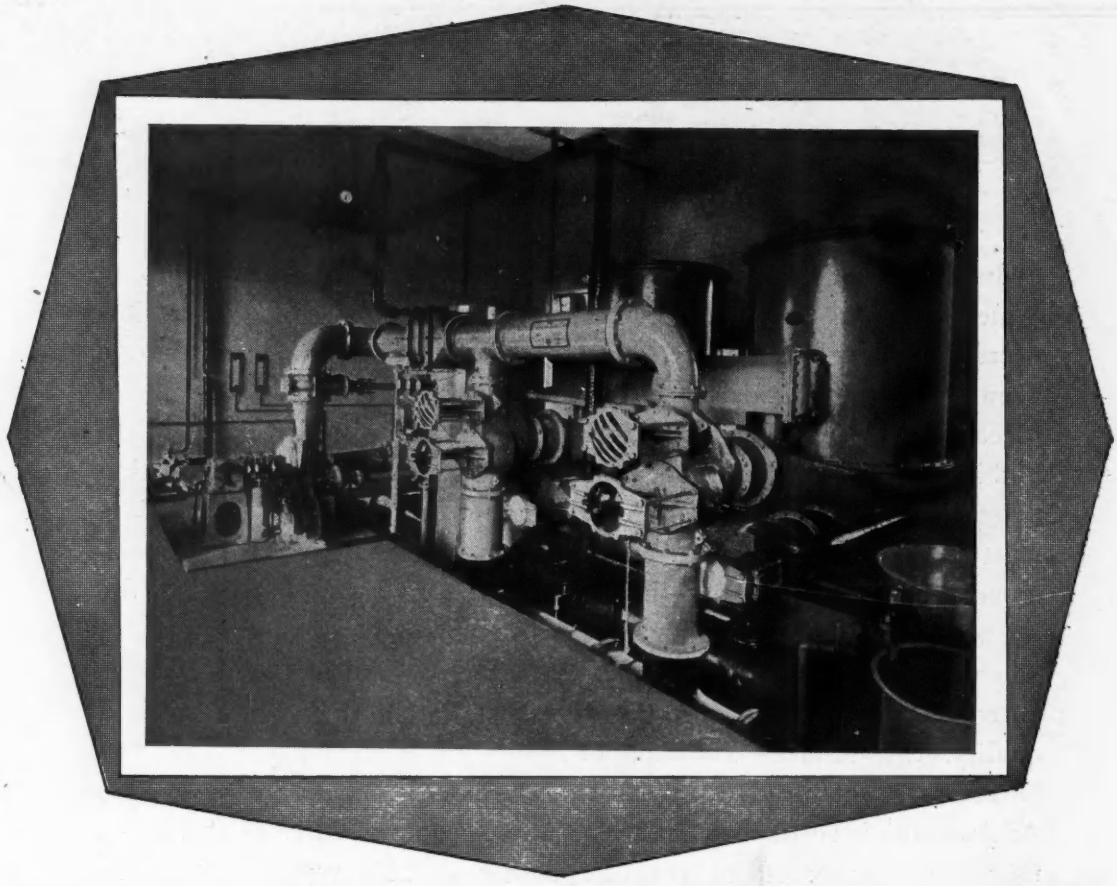

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This attractive background heater (above) radiates some of its heat and distributes the remainder by convection. It is fitted with four Neat burners which heat a pair of fireclay radiants. Ideal for halls or landings. Finished in cream heat resisting enamel with chromium plated top.

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Neat gas burners	—	mix gas and air at the point of combustion. They cannot therefore light back yet give perfect combustion. They are silent and have single point adjustment.
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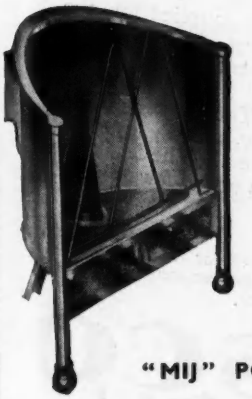
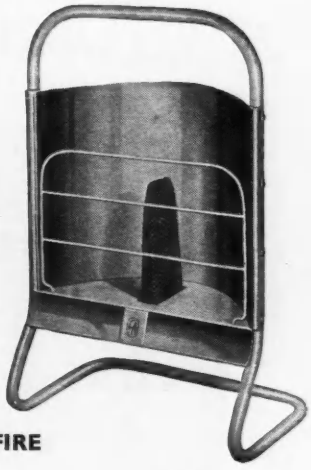


Featuring an unbreakable chrome steel radiant, this heater provides a remarkably high degree of heat radiation for a gas consumption as low as 6½ — 7 cu. ft. per hour through three Neat burners. It is finished in heavy chromium plate and processed aluminium. The most suitable fire for small rooms or localised heating.

"MIJ" PORTABLE GAS FIRE
FA/8

This strong, handsome heater is suitable for the medium sized room. Its radiant, made of chrome steel, is unbreakable and is scientifically designed to give high radiant efficiency. The reflector is chromium plated on heavy brass and the remainder of the heater is attractively finished in cream enamel.



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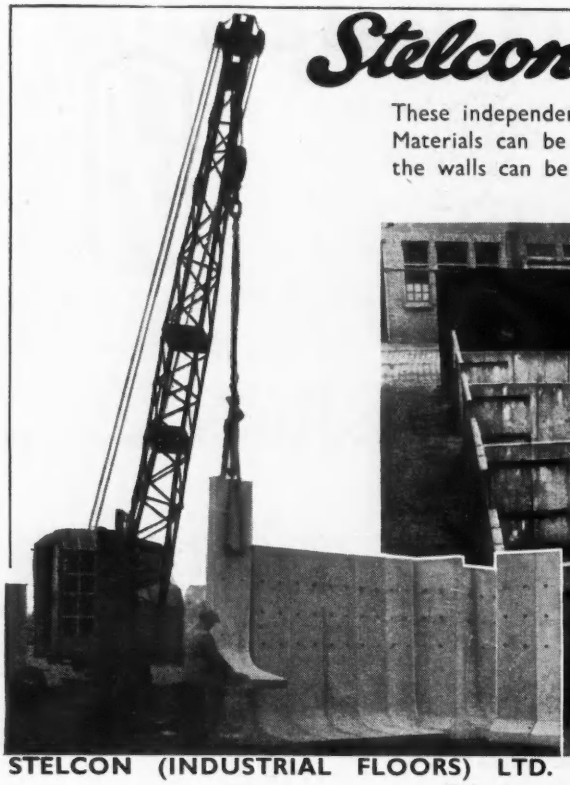

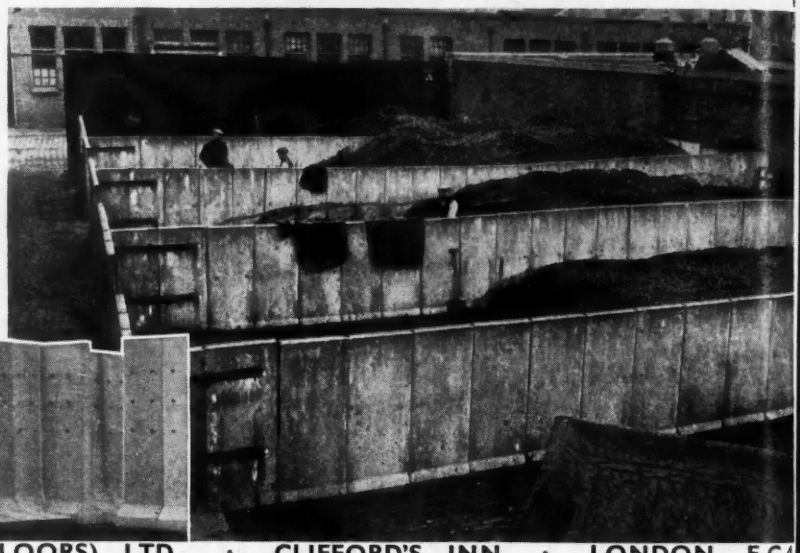

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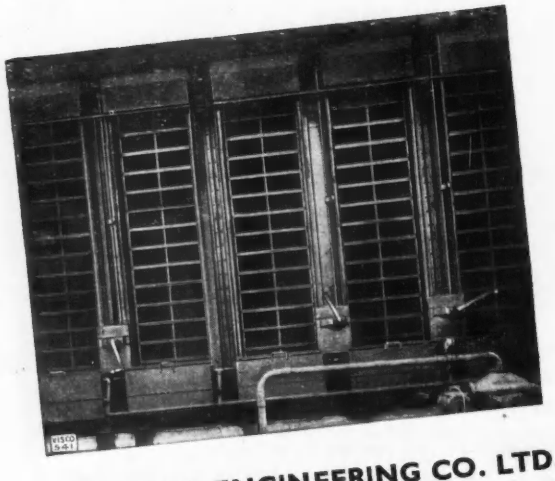
Self-Cleaning Air Filter for Steelworks



This "Visco" Rotating Self-Cleaning Air Filter—one of two supplied for the Turbine House of one of the largest Steelworks—is representative of many installed in Rolling Mills and other industrial plants. The Filter is of 50,000 c.f.m. capacity, and incorporates the "Oil Spray" system. The Maintenance time required is only a few minutes daily.

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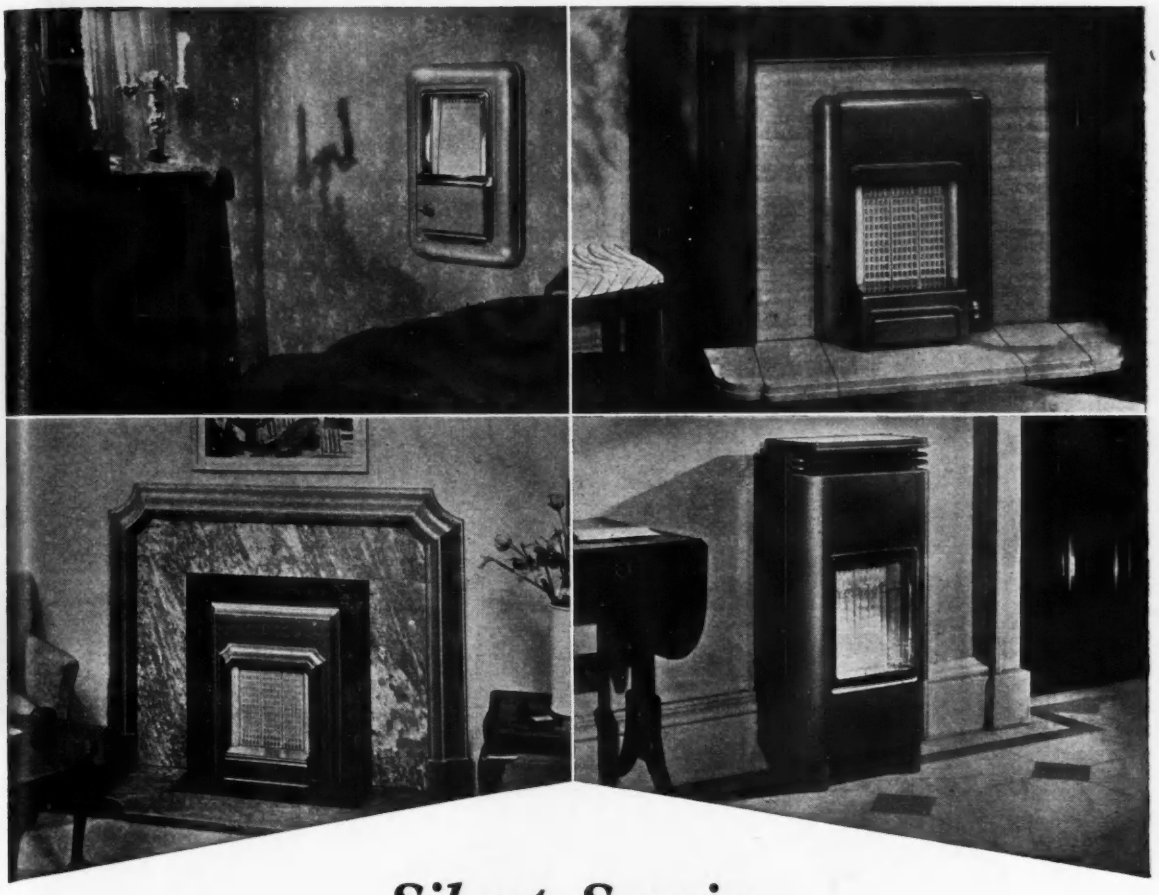

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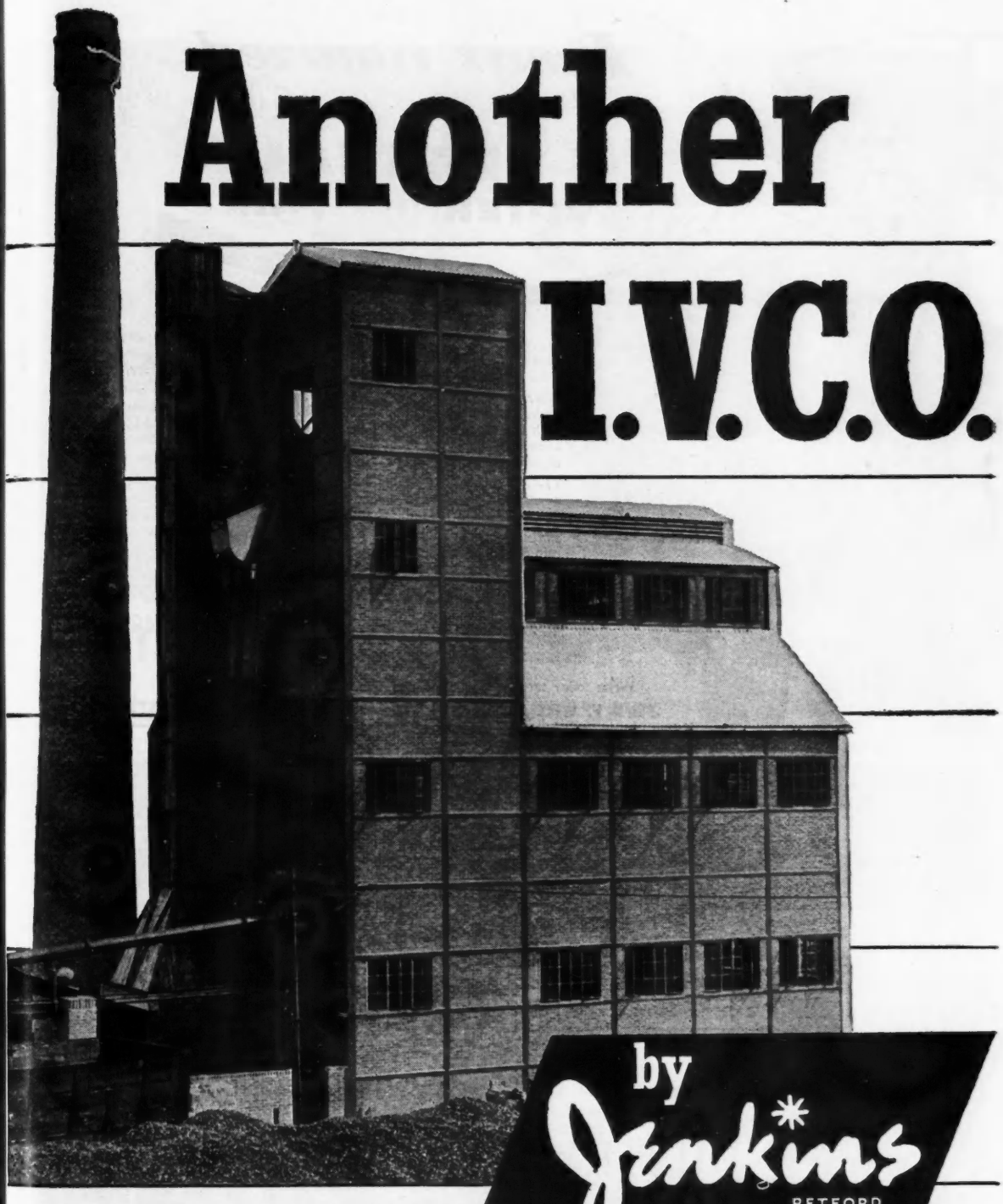

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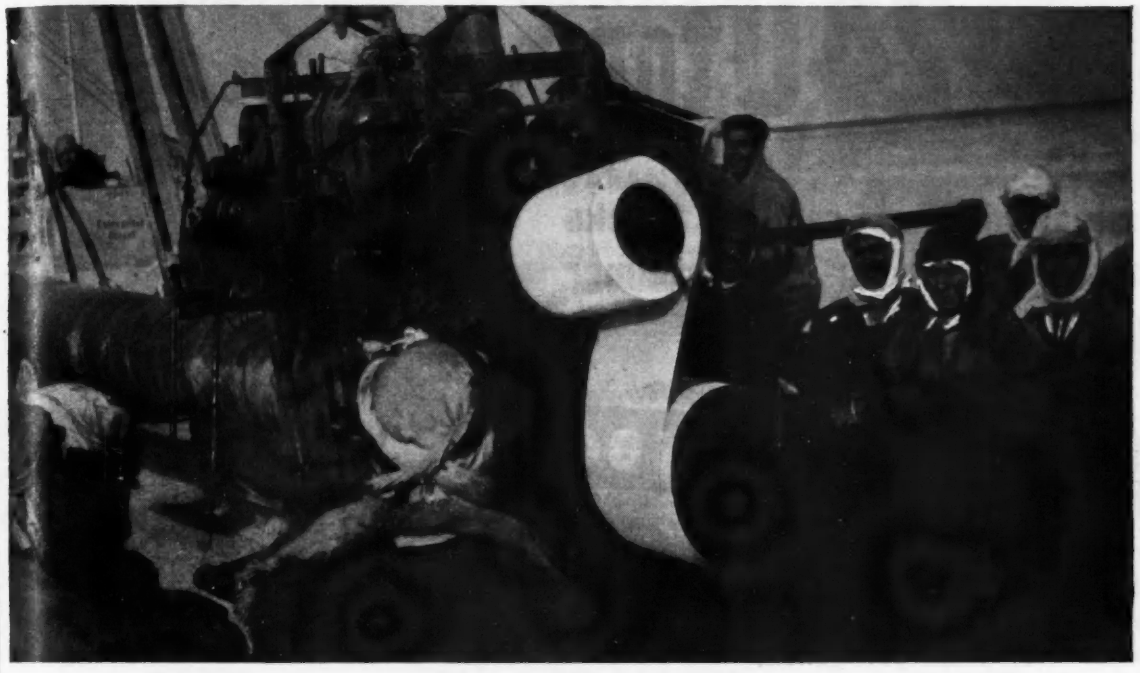

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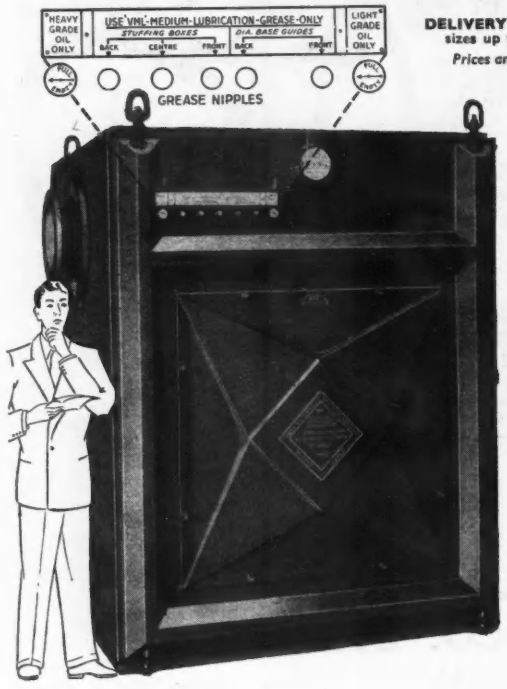
(SMALL CASE)



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Capacity of meter	30,000 cu. ft. per hour.

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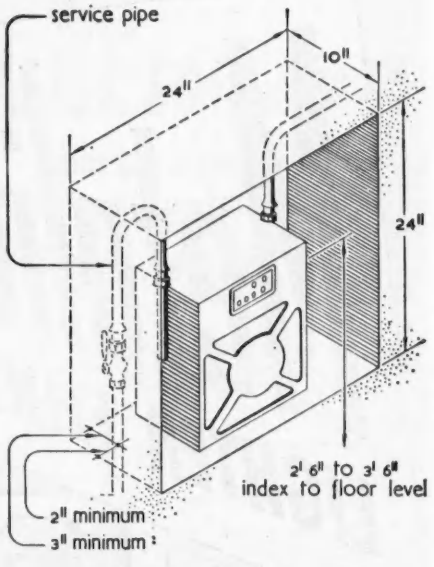
Positions to be avoided are : above cooking or heating appliances, in larders or food stores, under draining boards or adjoining sinks, where there is likely to be a wide variation in temperature.

If a single compartment is to be used for both gas and electricity meters and their controls, a fire resisting and non-conducting partition should be fitted between them.



The Technical Information Bureau of the Lead Industries Development Council, which exists to give assistance on problems relating to the use of lead sheet and pipe in building work, will be pleased to give advice on any questions relating to the uses of the materials.

LEAD INDUSTRIES DEVELOPMENT COUNCIL, EAGLE HOUSE, JERMYN STREET, LONDON, SW1

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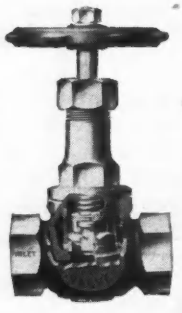

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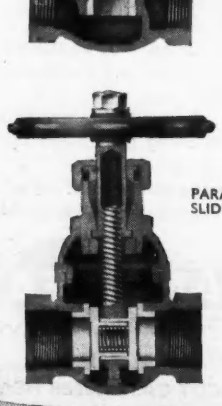

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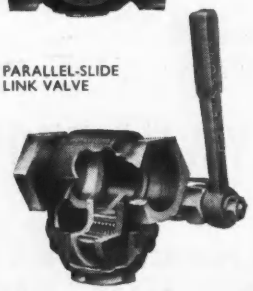

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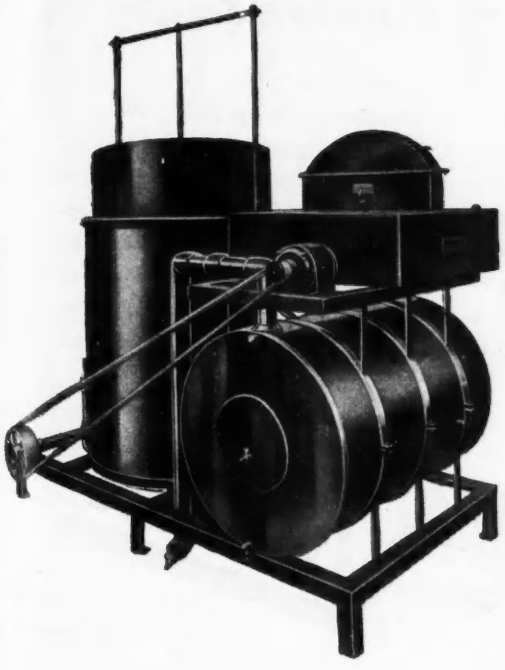

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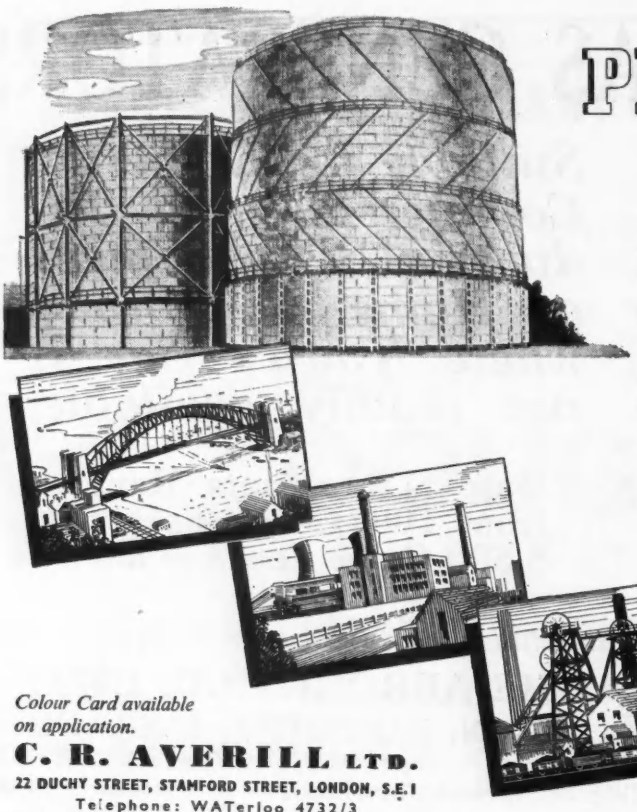

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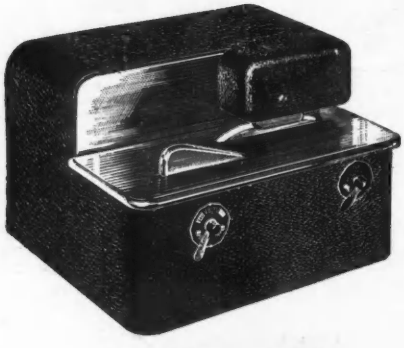

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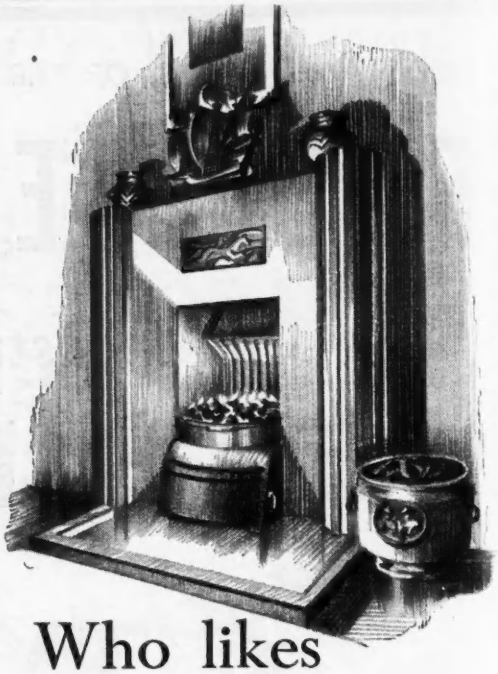

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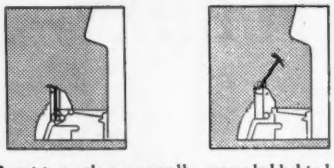

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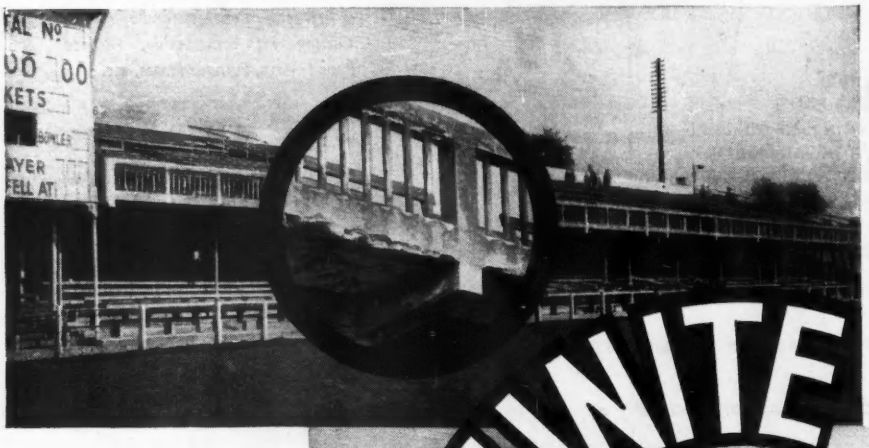

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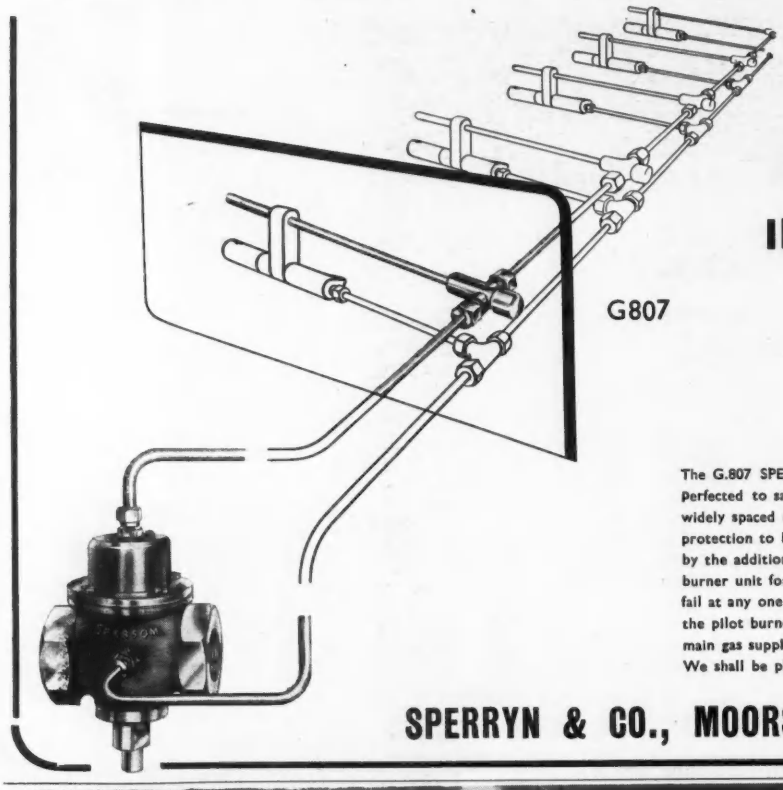

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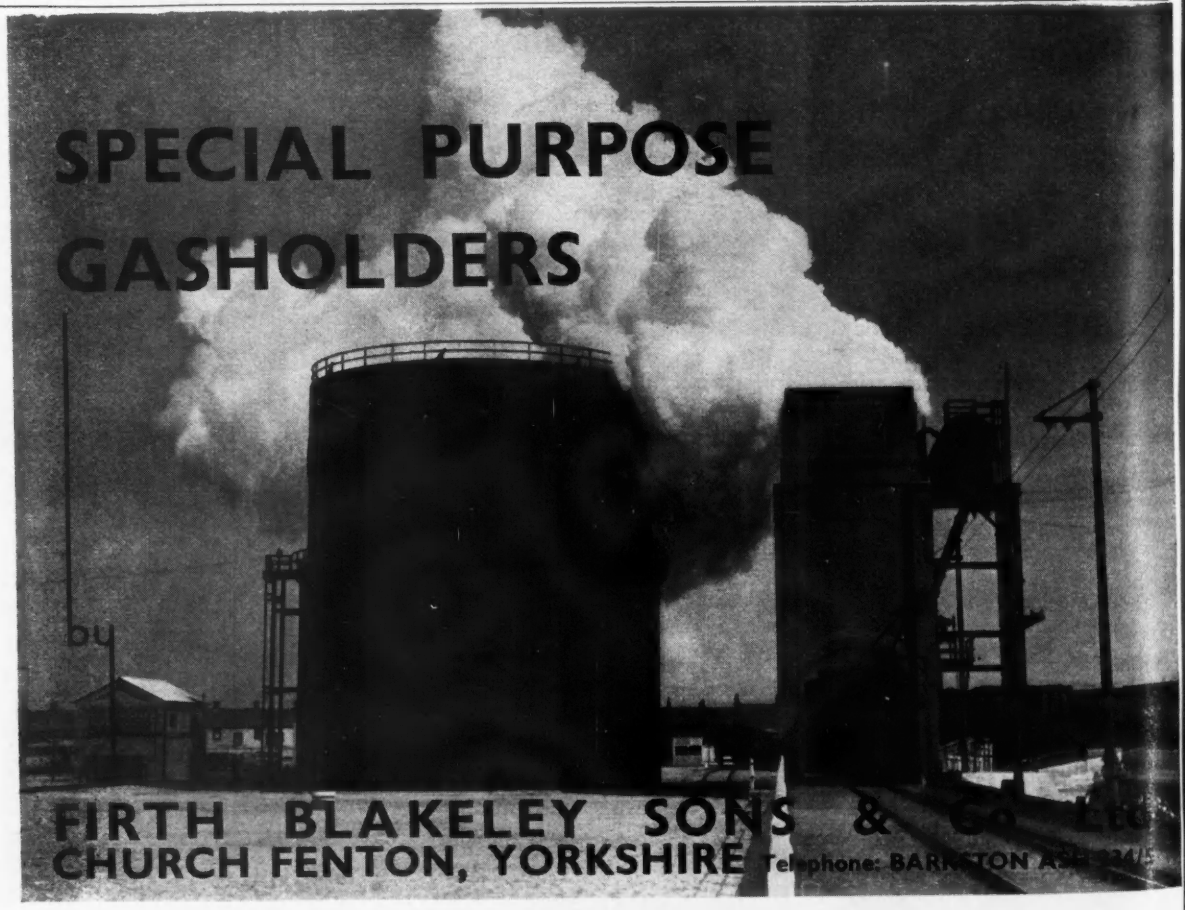

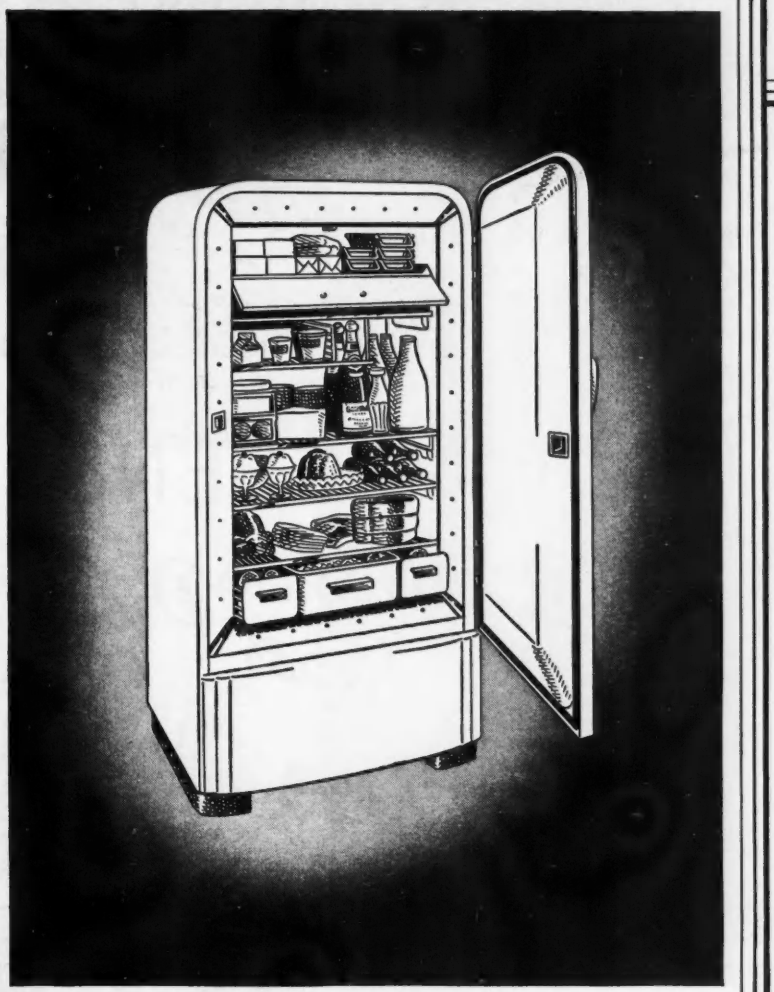

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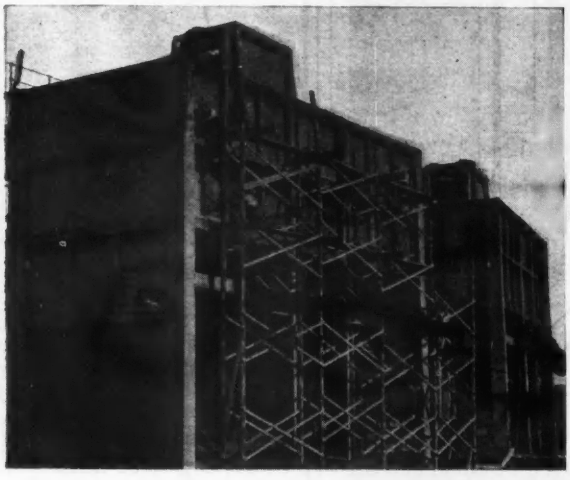

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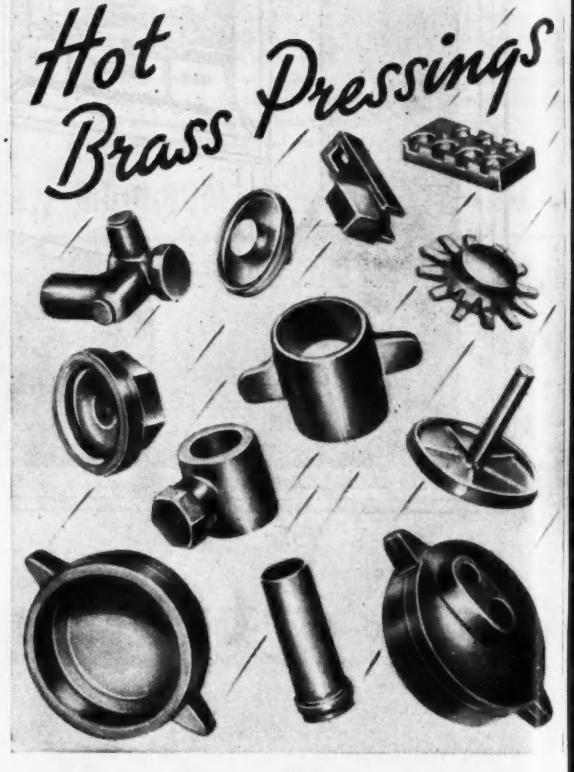

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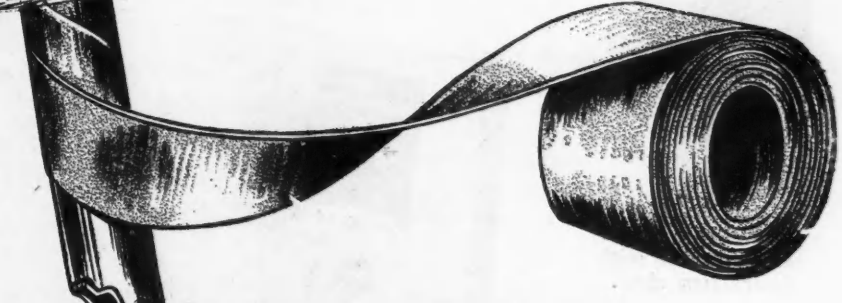

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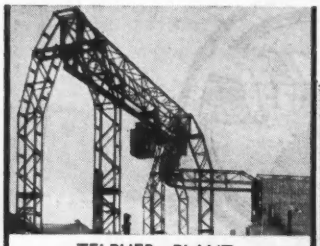

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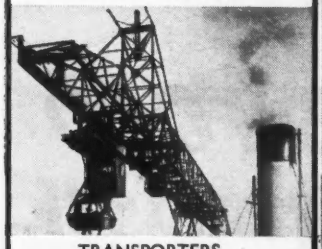

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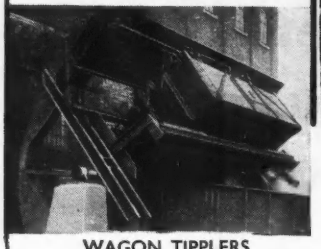

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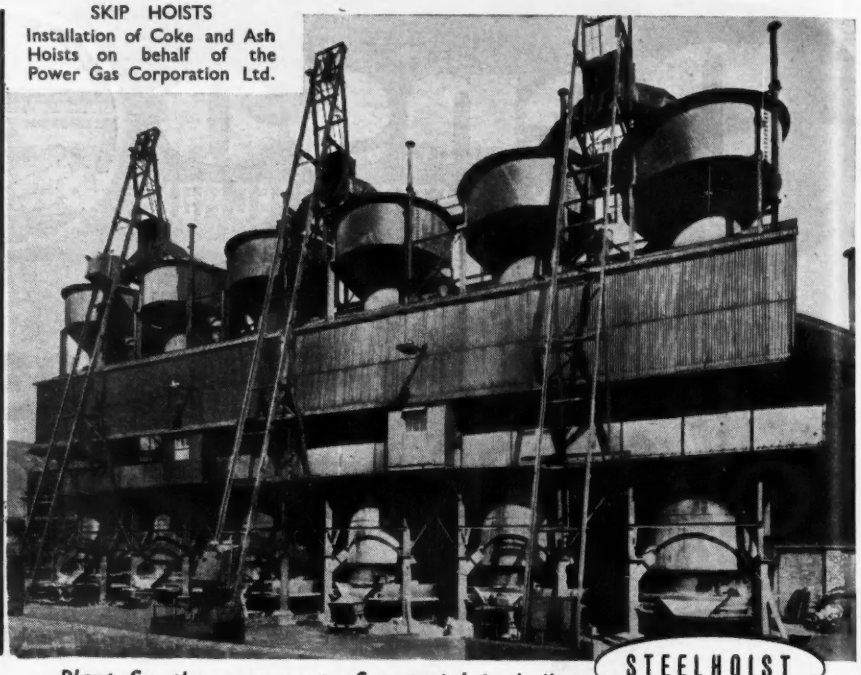

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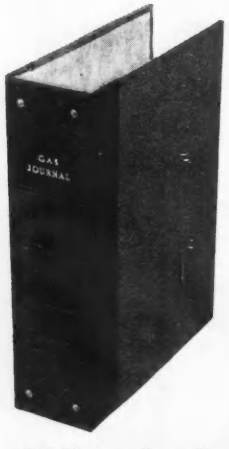

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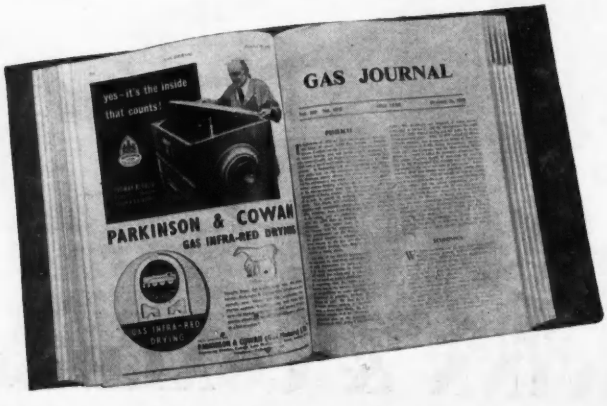

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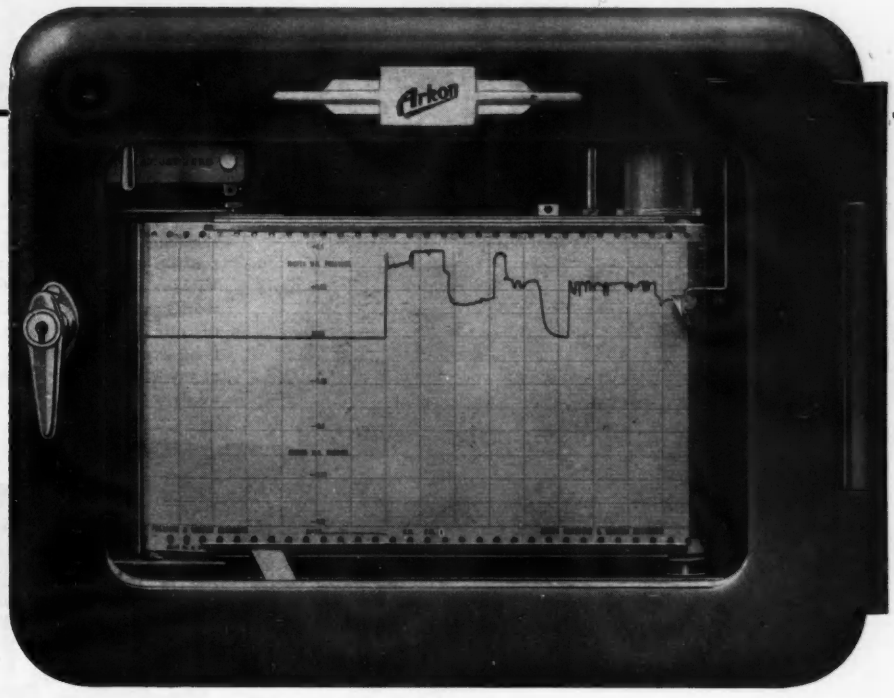

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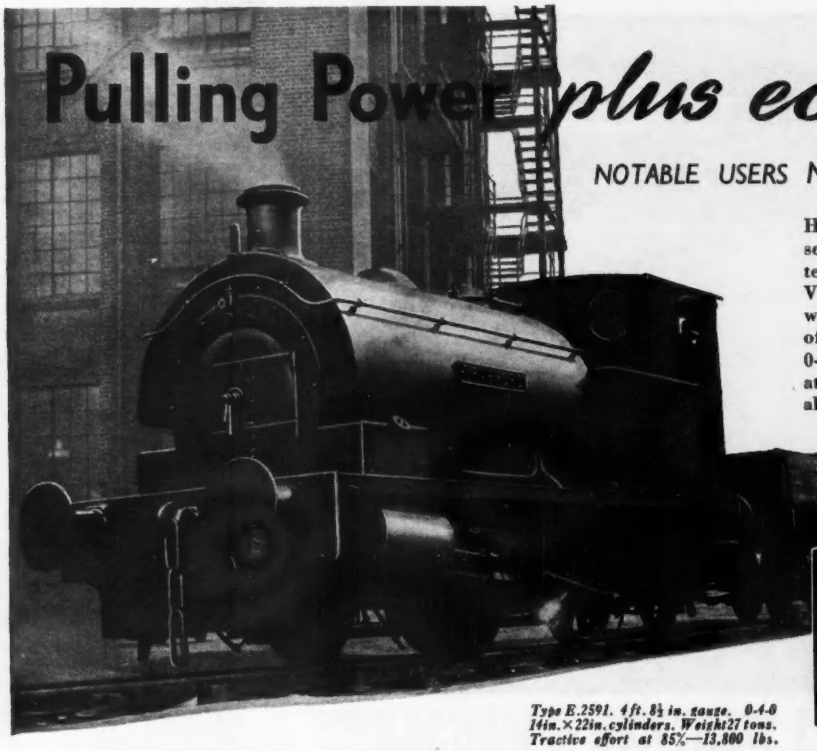

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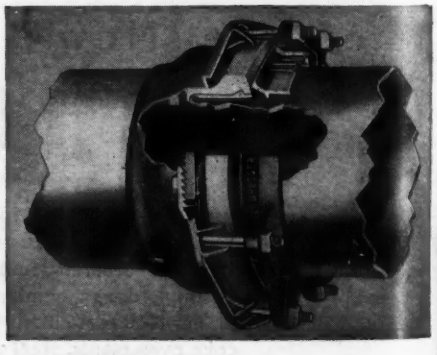

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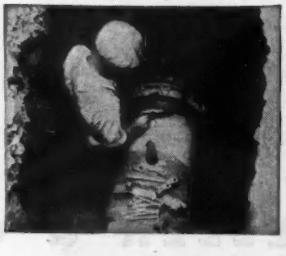

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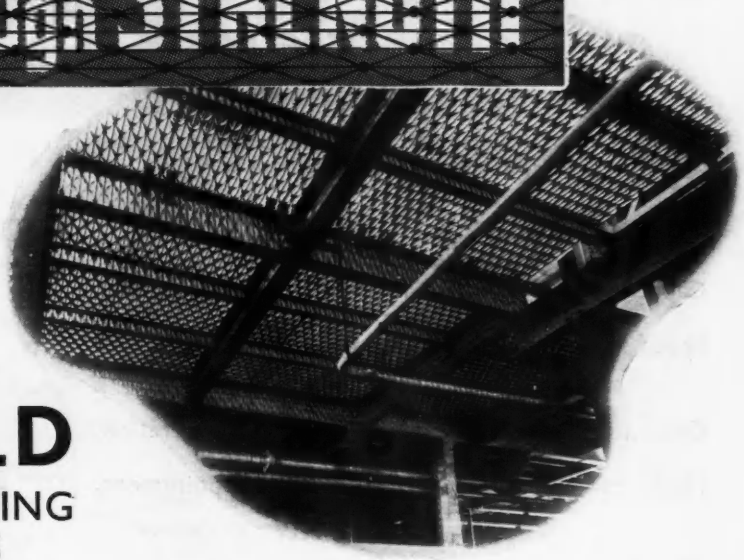

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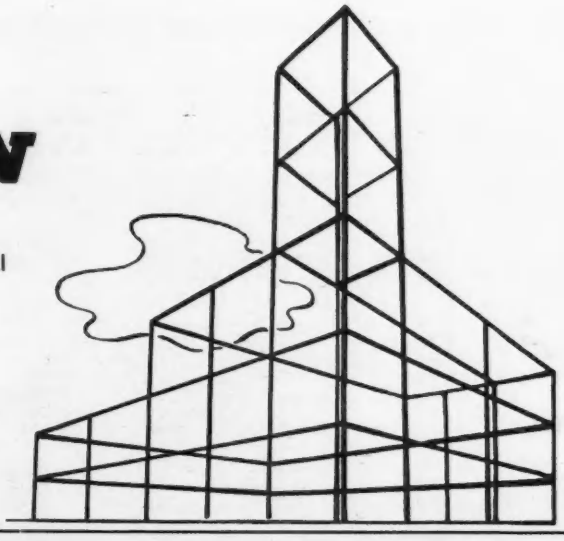

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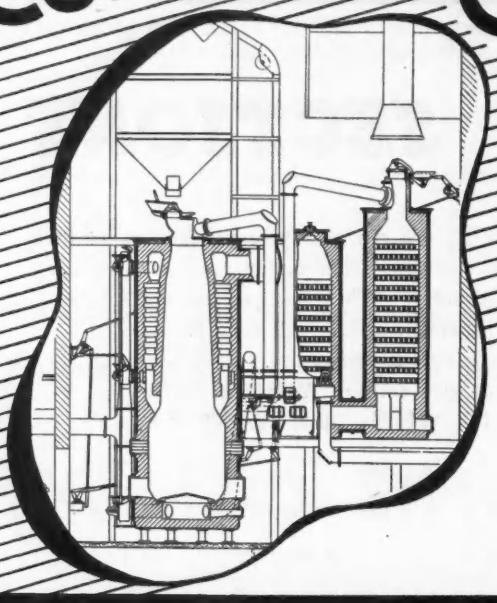

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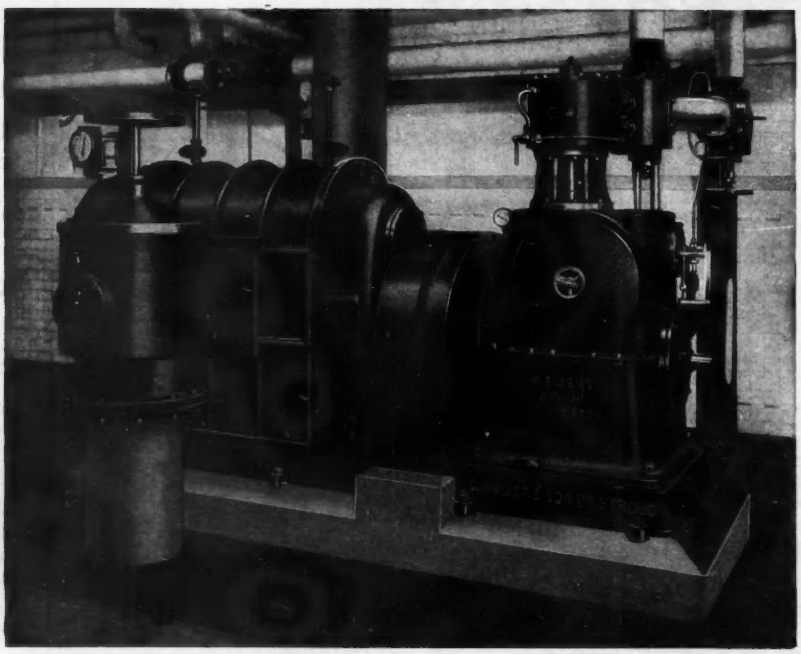

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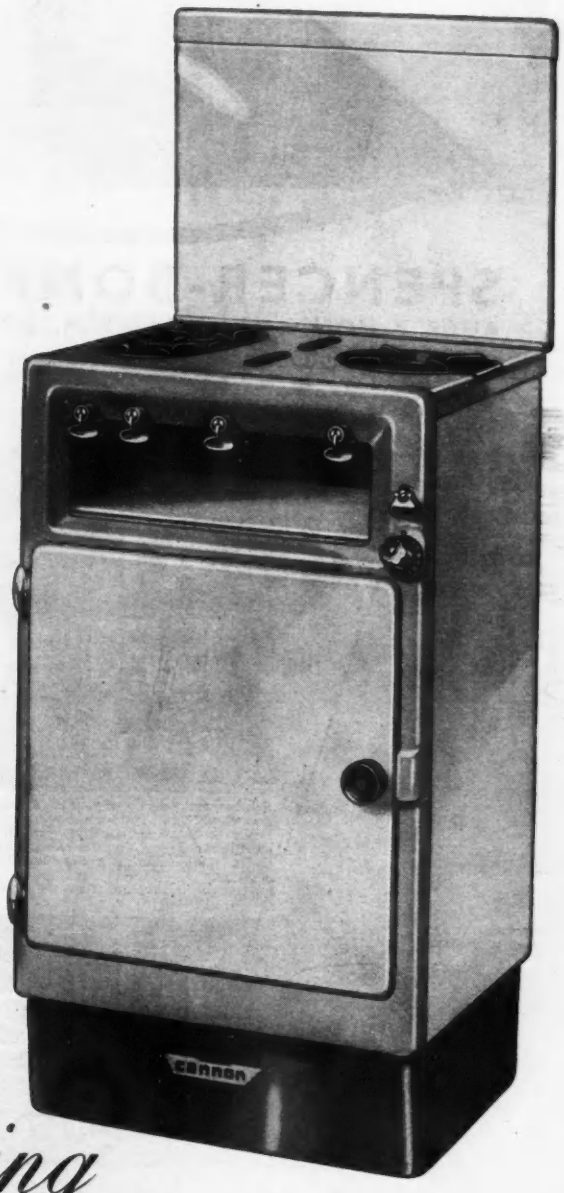

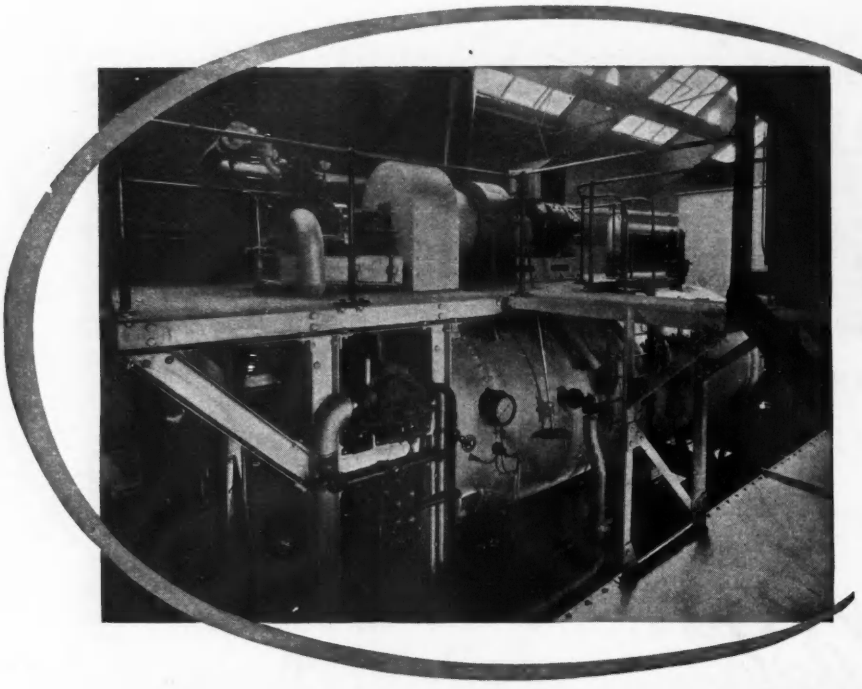

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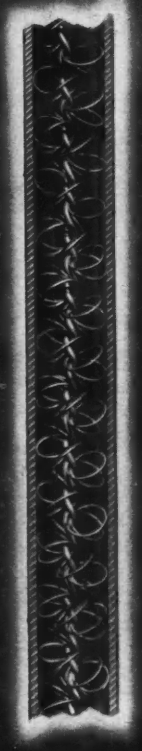

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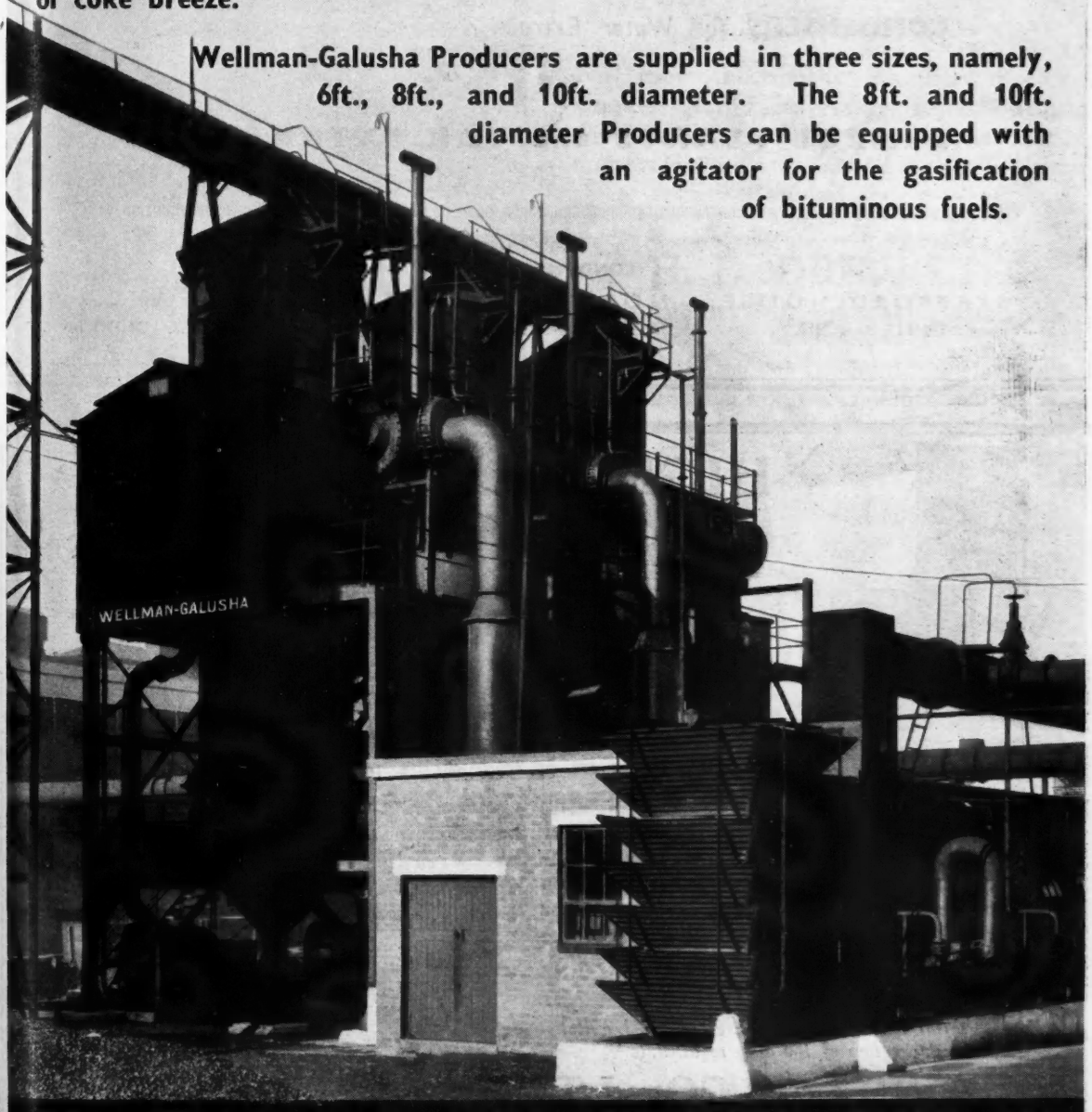

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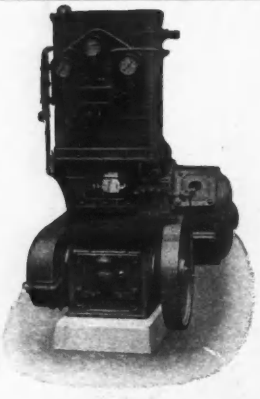

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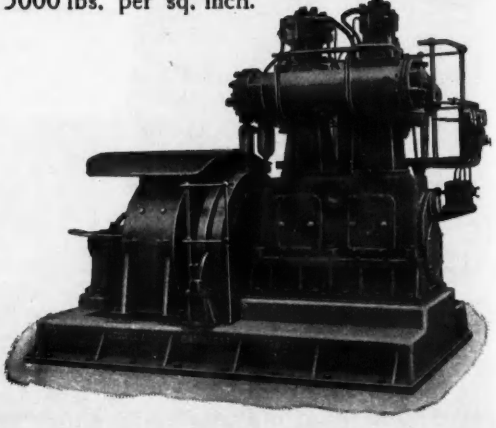

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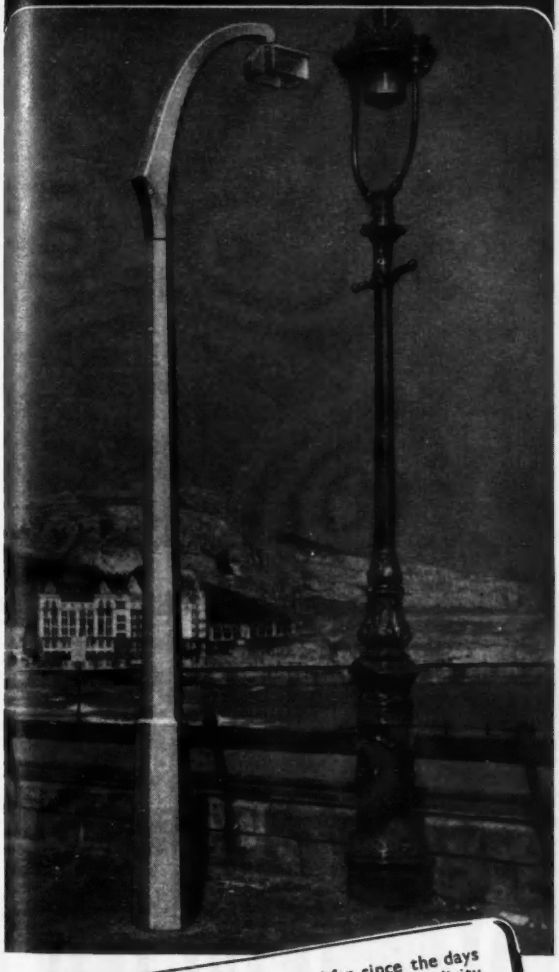

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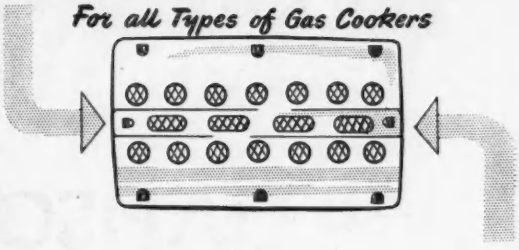

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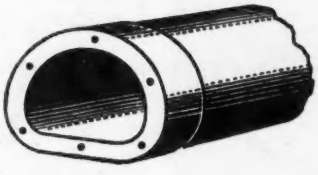

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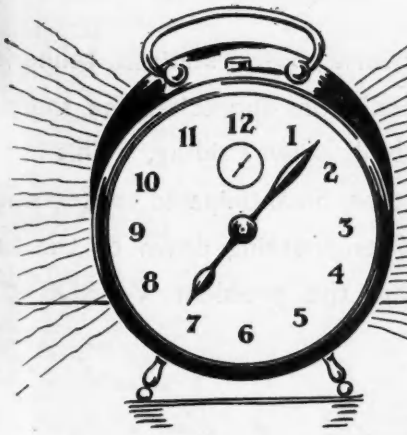

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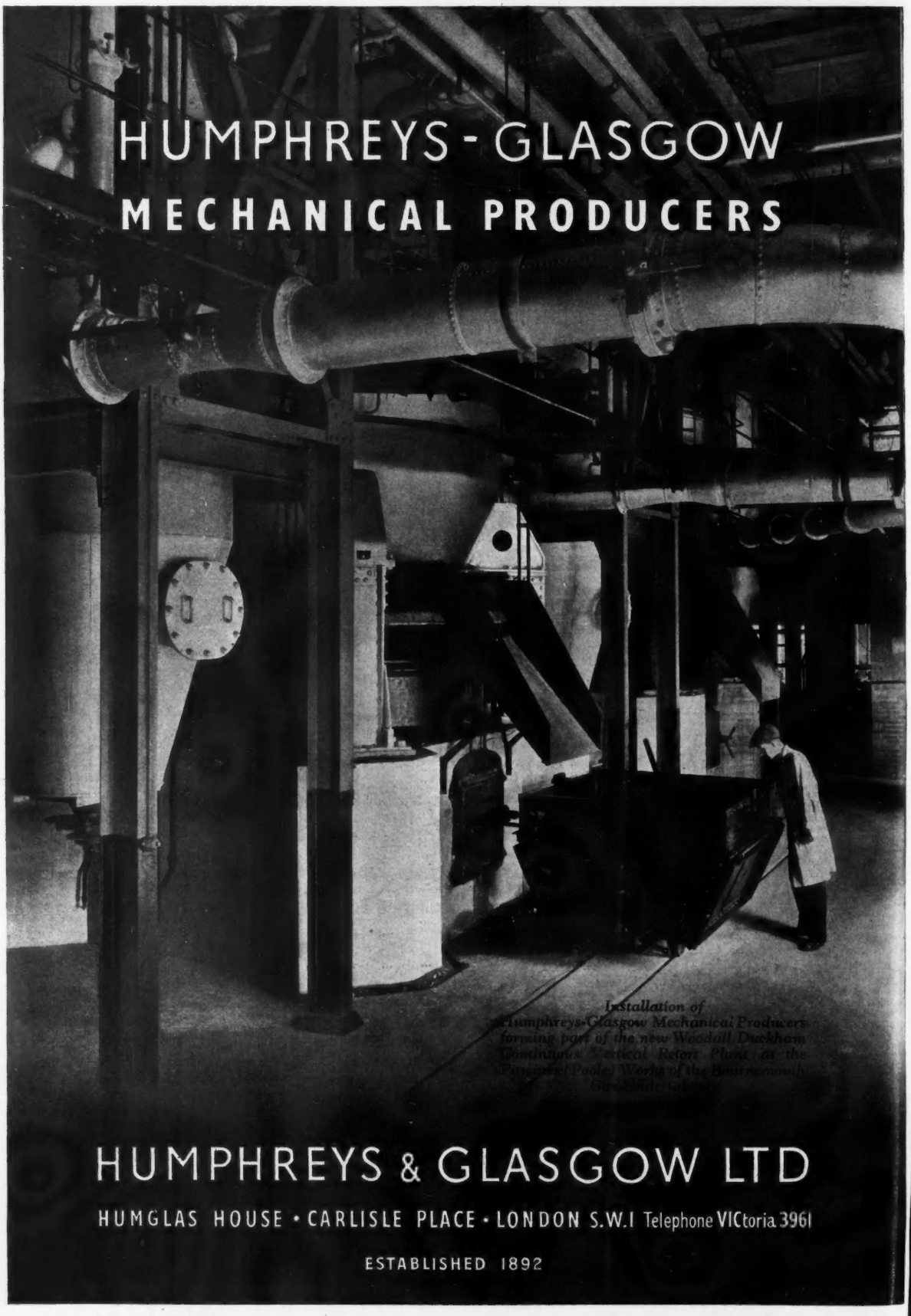
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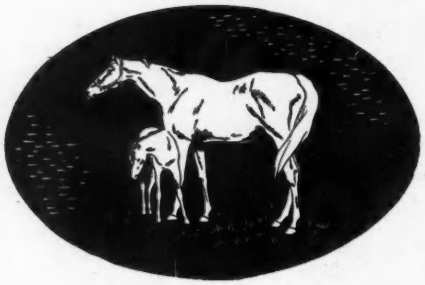

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GAS JOURNAL

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GAS TRUNKS

ONE of the minor points raised in the discussion of Mr. A. W. Elliott's paper recently presented to the Midland Section of the Institution of Gas Engineers was the use of the word 'grid.' It was felt to be a pity that we should take over this word from another industry. Its etymology goes back to the gridiron of quite mediaeval times and further back still to the Latin word for hurdle. These ideas fit in not inappropriately with a network of wires, but they do not convey at all happily the idea of a system of trunk mains superimposed upon the lesser reticulations of the urban districts of supply which they connect and feed. Yet even the classic report of 1930 of the Departmental Committee on Area Gas Supply used the term 'gas network' which is only 'gas grid' in another form. These cant or jargon words, once they gain wide currency, are very hard to kill. Witness the lingering death of 'gasometer.' Can we do anything with 'trunks'? Its appropriateness is obvious. We could talk of taking gas from, or putting it into, the trunk system, or even the trunks. But, even though the objectionable word grid reminded Mr. Tran of the worst kind of bicycle, we think that 'gas grid' has come to stay. No one will venture seriously to censure Mr. Elliott for the choice of his title, 'Development of a Gas Grid.'

The paper presents an admirable picture of integration at work. The characteristics of the area in question are not dissimilar to those of South Yorkshire which was selected in the 1930 report as being the only one in the Midlands really suitable for the development of a gas network. It is interesting to note the slightly different slant of that discussion. The quantity of surplus coke oven gas was high, and could be higher if the ovens were reconstructed on modern lines. But the Committee was forced to the conclusion that in the ordinary course there would not be a sufficient demand for gas to absorb the surplus coke oven gas in the district. This gas was to be popularised in industrial application by its low price. Industry must have cheap gas. Existing gasworks plant was only to be shut down, in order to utilise coke oven gas in those cases where there was no other market for the surplus and where it would be cheaper, after taking into consideration all factors, for gas undertakings to purchase this gas in bulk. Elaborate tables were calculated to show, on the basis of prices then ruling, the costs of transmission and compression. They need recalculating to serve in present-day discussions.

The district supplied by the Notts and Derby Division of the East Midlands Gas Board area is not unlike that of South Yorkshire in that it includes two large gasworks and a number of medium and small ones, and a number of coke oven plants concentrated within a small area. The scale is somewhat smaller. The density of population and of industry is somewhat less. It will be as true for this district as for that of South Yorkshire that there is no technical difficulty in the transmission of gas over a network of this size. We assume that the accountants behind Mr. Elliott have assured him that there is no financial difficulty: that in every case where gasworks plant is to be shut down, bulk supply from the sources available will be cheaper. The fact that so much of the necessary trunk mains were installed or approved before vesting date seems to be an earnest of this. The extent and disposition of the mains needed to complete the system do not appear to present any great obstacle.

The idea is that the whole division shall be treated as one undertaking with manufacturing plants feeding into the trunk system and distribution centres taking from it, with adequate holder storage capacity at the several centres. The system of gas grid control seems to have been thoroughly worked out with daily reports of all essential details upon which can be based each day's operations. These operations may be at present largely effected by improvisation and much will be learned in the months which elapse before the whole is welded into a complete system.

One of the interesting details is the progressive standardisation of calorific value throughout the division. At vesting date the three largest undertakings declared at 480, 500, and 475, one very small undertaking at 440 and a number of others at 450. The very sensible course has been adopted to bring them all to 480. Carbonisers will agree that this is a very satisfactory figure in view of the coals available in this district. It is interesting to note

that coke oven gas supplies are to be standardised at 485 for purified and 500 for crude gas, to permit air to be added for purification. Purified coke oven gas is thus to be 1% above the declared value. In South Yorkshire there was to be a permitted variation of plus or minus 4%—*i.e.*, nearly 20 B.Th.U.—for two hours, while coke oven managers claimed that a maximum fluctuation of plus or minus 2% within 24 hours could be observed. These margins are to be compared with the plus or minus 5% of the Committee on Gas Quality recommended as being attainable in practice and satisfactory to the consumer.

The procedure for forecasting the future demand for gas and the plant available to meet it is very interesting. 'Programme ahead' is a sound principle. It is realistic when the programme is constantly under revision. That it has to be based to some extent upon information provided by the coke oven plant owners should give rise to renewed discussion whether the coke ovens should not be brought under the control of the gas-making industry. In any case coke oven gas supply must be treated as base-load provision. The claim for coke oven flexibility based on compound heating involves a permitted waste of rich gas which is repugnant to modern ideas of fuel economy. The flexibility of gasworks plant is vastly greater and can be used without serious loss of efficiency.

Integration involves some concentration of manufacturing plant in a relatively few stations of medium or large capacity. The question arises: at what capacity is the economy of operation at the maximum? We are not sure that though Mr. Elliott says 'it is generally considered' that this optimum figure is 10 mill. daily, everyone will agree with him. Certainly optimum thermal efficiency is reached at a much lower figure. But there are many factors which go to overall operational efficiency. One of them is the personal element. Perhaps the best overall results are obtained in works of a capacity just not too great to come under the direct control of one fully qualified operational engineer. That capacity will vary widely with local conditions but it would appear that works of a capacity considerably less than 10 mill. have been and can be operated at the maximum level of efficiency. The question is bound up with that of the economical distribution of coke—and we are not sure that this aspect of the matter was convincingly dealt with either in the paper or in the following discussion. On the other hand the question of gasholder storage capacity was admirably and adequately dealt with and in a manner which may serve as a model for future projects.

All this involves special methods of financial control—very competently dealt with by Mr. Elliott. The most immediately interesting of the consequential points was that of testing for quality. Ingenious advantage is taken of the new arrangement to reduce testing points to nine as compared with the present 28 testing stations. We shall look forward to the promised account to be rendered in the future of the progress of this interesting scheme and the results of its working. If indeed this leads to financial success, coupled with standard charges for gas at uniform calorific value throughout the division, the scheme will be fully justified.

SCRAP BOOK 1886-1949

SEVENTY-FIVE years after its formation for 'more frequent intercourse among gas engineers and managers connected with the Southern counties on all matters of gas engineering and manufacture than is at present available,' the Southern Association of Gas Engineers and Managers has been liquidated and in its place there have been formed the London and Southern Section and the South Western Section of the Institution of Gas Engineers, covering approximately the same areas as the former Eastern and Western Districts of the Association. The earliest steps towards the conversion of the district associations into district sections of the Institution were taken in the Southern Association during the year of Mr. H. J. Escreet's presidency, and although the metamorphosis has given rise to feelings of regret at the breaking of a link between east and west (a link superseded by the stronger tie of common membership of the parent Institution) it has been fully in accord with modern trends. All the major associations in England and Wales have taken a similar step, although the Southern is the only one to become the parent of 'twins,' and the outcome will undoubtedly be an accession of strength to the Institution and all its sections.

In place of a formal luncheon, the combined final meeting of the S.A.G.E.M. and first joint meeting of the two Sections last week was preceded by an informal luncheon in the atmosphere of a family party, with 16 past presidents and three past secretaries as guests. The Press were welcomed, on this occasion as friends rather than scribes, 'without fear or favour,' and were invited to relax and enjoy the occasion. We certainly enjoyed it, not least the turning of the Association's scrapbook by Mr. J. H. Dyde, of whom it was said that he was the last President and the office 'Dyde' with him. At his Westminster office the recorded proceedings of the district associations date from 1886 and from these an independent reader picked out passages from some of the presidential addresses of bygone years. Sixty-four years have passed since George (later Sir George) Livesey remarked: 'Finding something to say in these days when every branch of the profession has been ransacked by many able men who in this and other associations have preceded me is no easy task'—and people are still saying the same words today. Livesey's theme was 'work out a complete gas-making plant and build anew—don't renew.' He added: 'Important as is economy in relation to capital outlay, its bearing on revenue must take at least equal rank. An undertaking may have an excessive capital, the disadvantages of which may be to a great extent neutralised by the exercise of sound judgment in revenue expenditure. The chief item on which saving can be effected is that of repair and maintenance.' What a contrast today!

From 1886 Mr. Dyde skipped to 1918, in which year W. B. Farquhar, referring to the effects of the first world war, said: 'Influences are at work tending to revolutionise not only our works processes but also our whole general policy. . . Engineers are greatly concerned at the enormous capital expenditure which will be necessary to put down new plant.' In 1920, C. F. Botley said: 'Apart from higher costs we are all experiencing trouble and

delay in getting material for the repair or extension of plant, due to reduced working hours granted to railwaymen and transport workers. Many of our employees now have to subscribe to doctrines and schemes of which I believe the majority cordially disapprove. This new system is a poor substitute for the splendid co-operation and comradeship which used to exist and which I hope is in spite of all gradually being restored.' In the following year J. Wesley Whimster said: 'Economy is an extremely popular gospel at the present time; as a precept, unhappily, however, it has more exponents than exemplars, more preachers than disciples. Our war experience has taught us that it is possible to under-estimate the capacity of plant and it behoves us to see if, even now, we are working our plants with the utmost efficiency and obtaining the maximum results before embarking on extensions. It might be possible, at a comparatively small expenditure, to increase existing plant and considerably to increase its output.'

Representing works with outputs of less than 150 mill. cu.ft. per annum, W. E. Dean in 1929 said: 'The outlook is very healthy and we can face the future with every confidence, assured that the march of progress will be fully maintained if our united efforts are directed to bringing to the notice of the public the national and personal benefits offered by the industry, which it is both our duty and our pleasure to serve.' A year later F. H. Jones, now one of the grand old men of the industry, said: 'I have been in most of the gasworks in this country and many abroad both large and small, and I am not speaking a platitude when I say I think I have learnt as much from the smallest undertakings as from the largest. The ideal engineer and manager of a large undertaking is a man who has worked in a small works and has had the wisdom to make himself, not a Jack of all trades, but a master of all trade connected with the industry.' Speaking of electrical competition, E. L. Nicholas in 1935 said: 'The younger generation particularly is attracted by new ideas, and we have to prove to them and to others that although we are old-established we are not old-fashioned.'

R. J. H. Clark in 1936 expressed pleasure at 'the tendency towards levelling up which is apparent throughout the industry,' and said he believed that 'success could best be achieved by a policy aiming at the highest possible efficiency in each department and with cordial team spirit pervading the whole.' In the following year S. E. Whitehead remarked that emphasis had passed from the engineer to the manager and 'management entails far more administration, utilisation, and sales work than construction or manufacturing problems.' In 1938, D. C. Cross referred to a letter written by a shareholder 26 years earlier which ran: 'As regards paying more money to employees, I strongly object. We shareholders ought first and only to be considered. If you cannot get cheap servants why not advertise for German ones. I not only protest but ask you to bring forward such protest as it may be your duty to do so.'

From 1938 Mr. Dyde turned the pages of the scrapbook to 1942, when, with the war at its height, G. le B. Diamond said: 'The repercussion of the war on world trade will have a profound bearing on our national life. It is inevitable that for a long time imports will be cut to the minimum for want of the means to pay. Should this prove to be great, the continuation of wartime measures would be involved and perhaps an even wider extension of the policy of home production, for it will be important to obtain the utmost from our indigenous products.' In 1945 W. A. Howie maintained that 'something drastic must be done by the coal mining industry to remedy the coal situation in this country when it is realised that the pithead price has increased 150% since 1936.'

Nationalisation was already on the horizon when in 1946 F. Dawson said that 'whatever the new framework of the industry has to be it must be such that it provides breeding ground for the full development of the initiative and latent talents of every individual, thus giving full scope for creative powers and ensuring happiness, happiness being a by-product and not an attainment in itself.' Early suggestions concerning the formation of district sections of the Institution were the feature of H. J. Escreet's presidential address in 1947, and lastly L. P. Ingram, in 1948, as the last 'private enterprise' president, observed: 'Today we have a greater call to service than ever before; if, as they should, our professional ethics transcend all questions of party politics, the only yardstick by which we can measure ourselves, our Association, and our industry is the degree of our success in serving our customers and our country.'

Apart from Sir George Livesey the authors of all these extracts were at the top table, joining in celebrating a further landmark in the history of the industry. While their utterances reveal sharp contrasts in outlook it is curious, as Mr. Dyde remarked, that in the tapestry of time the same pattern keeps emerging.

A TONIC MEETING

IT was a refreshing, not to say novel, experience to attend a meeting of gas men and not hear the word 'gas' mentioned once. The London and Southern Juniors provided this experience for us at their November meeting when they invited Dr. H. S. Crichton Starkey (Consulting Medical Officer to the North Thames Gas Board) to give the paper. Entitled 'Mankind in General —You in Particular,' it was not so much a 'paper' in the accepted sense of the word as a free consultation; and there could not have been a member present who did not go away feeling much better for Dr. Starkey's tonic. His is a delightful philosophy—namely, that we should base our lives on our national proverbs and sayings, which are the quintessence of racial wisdom, with 'Live and Let Live' as our guiding motto. And where two proverbs seem to give conflicting advice, choose the one which suits us best. Dr. Starkey set about de-bunking the fashionable craze for psychology. From the cradle to the grave, apparently, we all apply psychology as a perfectly natural process. Baby howls because his instinctive psychology tells him that by so doing he will be picked up and comforted, or fed, or changed, or whatever it may be. The business man sometimes bullies, sometimes appeases because his psychology tells him the desired result will thus be attained. Yet when we feel we are losing our grip we visit an expensive psychologist who produces in

us, or from us, what is technically known as abreaction—but what is, in fact, simply 'getting it off our chests.'

Dr. Starkey is likely to cause some flutter in the dovecots of office and factory—and, if common rumour is correct, he will shake the Civil Service to its foundations—when he asserts that we all drink too much. We hasten to add that he was referring to what he called this 'continual tippling of mild drugs' in the shape of cups and cups of tea and coffee. Sooner or later, we are warned, our long-suffering kidneys are going to rebel. Dr. Starkey struck a new note when he was cross-examined on the subject of malaria. Had we ever thought, he asked, what a perfectly beastly time the mosquito has? Frankly, we hadn't; but it will doubtless provide some comfort to the chronic sufferer from malaria to know that the insect which bit him is a martyr to stomach ulcers in a really big way.

Asked whether worry was not often due to over-conscientiousness, the doctor observed that conscientiousness and conscience were much the same thing, and many people would be much happier if they could have their consciences removed by surgical operation. It was altogether a most enlivening evening; and we commend to all our technical associations the idea that one meeting should be set apart each session for a discussion in the course of which any member using the word 'gas' shall be subject to a severe penalty—such, for example, as standing drinks all round.

ELECTRO-DETARRING

WE welcome and commend a new publication by Whessoe Limited on the subject of electro-detarring. The booklet in question is well produced and the information it conveys is factual and free from sales exaggeration. The whole represents a distinct technical service to the gas industry and the student can place reliance on its contents; it shows, too, a proper sense of responsibility to the industry. As we have said, the booklet is well produced, though for a publication of the type we should have favoured a different layout with a smaller page and most certainly with smaller type. We think that thereby it would have gained in distinction. However, the major point is that the method of approach to the subject is thoroughly helpful. 'Electro-Detarring' puts over the theory and the practice of the subject simply and effectively; the story is one for the serious reader who wants facts.

TECHNICAL DATA ON FUEL

ALL technologists interested in fuel will welcome the fifth edition of 'Technical Data on Fuel,' the first new edition of this standard work to be published for 15 years. The origin of this work goes back to 1928, when it was planned as a British contribution to the Fuel Conference of the World Power Conference held in London in that year. The aim was to enable technicians to make use of agreed information and data in their calculations, to avoid controversy when comparing results. The demand was such that three more editions were issued in the succeeding seven years. Under war-time conditions the preparation of a further edition was not possible, though during and immediately after the war four additional impressions of the fourth edition were issued. The present edition, the outcome as previously of the labours of members of the Technical Data on Fuel Committee under the chairmanship of Sir Ernest Smith and with H. M. Spiers as Editor, incorporates a great deal of additional matter and has called for searching revision. It is available from the British National Committee of the World Power Conference (201, Grand Buildings, Trafalgar Square, W.C.2), and the price is 25s.

Personal

Mr. **A. Mitchell** (Barnstaple) has been appointed a member of the South Western Gas Consultative Council.

◇ ◇ ◇

Mr. **E. Aspinall** has been elected to the Board of Robert Dempster & Sons, Ltd., Elland, to fill the vacancy caused by the death of Mr. E. J. King.

◇ ◇ ◇

Mr. **Arthur Titchener** has retired after 50 years' service with the Swindon United Gas Company and the South Western Gas Board. He estimates that as a meter collector he has collected 90 tons of silver and copper amounting to £390,000.

◇ ◇ ◇

Mr. **F. Standbridge,** First Administrative Assistant to the Divisional Manager, Birmingham (West Midlands) has been appointed Chief Administrative Assistant to the Leicester and Northants Division (East Midlands). The appointment follows the transfer of Mr. **W. L. Bray** from Leicester to the Notts. and Derby Division.

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Mr. **J. E. White,** M.I.MECH.E., M.INST.GAS E., General Manager, Newcastle Division, has been appointed Chairman of the Committee of Divisional General Managers, Northern Gas Board, consequent upon the death of Mr. C. C. Walmsley, Divisional General Manager of the Sunderland Division.

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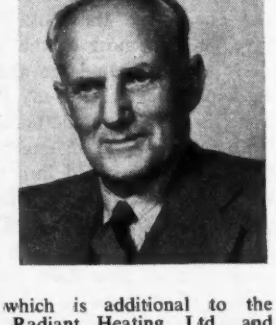

Mr. **Archibald Preston** has taken over the representation of Radiant Heating, Ltd., for the whole of Ireland, both the Republic and Northern Ireland. Mr. Preston, who is well known in engineering circles, was associated with Mr. Arthur Docking, Chairman and Governing Director of Radiant Heating, Ltd., over 20 years ago. He was Managing Director of Sharp and Preston, Ltd., the Dublin engineering firm of that time, and has been special travelling export representative for Crossley Bros., Ltd., of Manchester. Mr. Preston brings a varied experience to his new appointment which is additional to the arrangements existing between Radiant Heating, Ltd., and Ascot Gas Water Heaters, Ltd., with whom Mr. Preston will work in collaboration. Mr. Preston's address is 5, Burgh Quay, Dublin, and his telephone number is Dublin 75544.

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Dame Vera Laughton Mathews has accepted an invitation from the Gas Council to act as its adviser on women's interests. For this reason, she has resigned the Chairmanship of the Domestic Coal Consumers' Council, but she retains her position as a part-time member of the South Eastern Gas Board. Dame Vera became Chairman of the Council on its constitution in July, 1947, and during the three years of office she has taken a keen interest in all matters concerning coal supplies for household use and, in particular, in the wider use of appliances designed to make more efficient use of the limited supplies of coal which are available, and to save work for the housewife. The Minister of Fuel and Power has accepted Dame Vera's resignation with regret and has expressed his warm appreciation of the work which she has done. Dame Vera Laughton Mathews was Director of the Women's Royal Naval Service from 1939 to 1946, and is President of the National Smoke Abatement Society for the current year.

Mr. **John Corrigan** was presented with a golf bag as a farewell gift by members of the Loughborough gas undertaking on taking up his new appointment as manager of the Northants Sub-Division of the East Midlands Gas Board. The presentation was made by Mr. S. A. J. Harrod, his successor at Loughborough.

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Presentations of wallets and cheques in appreciation of over 50 years' service were made recently by Mr. H. F. H. Jones, Chairman of the East Midlands Gas Board, at Nottingham, to two employees and four former employees of the local gas undertaking. The recipients were: Mr. H. Bellamy, retired maintenance foreman (50 years); Mr. F. Chambers, responsible for loading crude tar at Basford (52 years); Mr. W. Holland, retired costing clerk (51 years); Mr. C. Rogers, district inspector (50 years); Mr. J. H. Lees, retired cashier (51 years); and Mr. A. J. Smith retired from charge of prepayment section (51 years). A similar presentation was made to Mr. S. Gale, foreman of the Newark gasworks, and also at Long Eaton the same day to Mr. George Racklyeft, who is chief meter inspector of the gas undertaking there.

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Members of the North Western Area Council of the National Joint Industrial Council for the Gas Industry, which regulates rates of pay and conditions of work in the gas industry of the North West, on November 3 made a presentation to Colonel **W. Moncrieff Carr,** C.B.E., T.D., on his retirement from the Chairmanship of the Council, following his retirement from the Chairmanship of the North Western Gas Board. Presentations in recognition of their services as former Joint Honorary Secretaries of the Council were also made to Mr. A. Henshall and Mr. H. Butters, now Deputy Chairman and whole-time Member respectively of the North Western Gas Board. Mr. Andrew Basnett, M.B.E., J.P., Chairman of the Council, who made the presentations, said that during all the time Colonel Carr had been on the Council from 1928 to 1937 and again from 1943 to the present there had never been a complete breakdown. 'Colonel Carr's departure will be a big loss,' remarked Mr. Basnett. 'He will carry with him the good wishes of all his associates in the Joint Industrial Council for a speedy and full recovery of his health.'

Board members, group general managers and principal officers of the North Western Gas Board, together with a few personal friends, combined to give a farewell dinner and presentation to Colonel Carr. The dinner was held at the Midland Hotel, Manchester, on November 2, and Mr. W. Hodkinson, Chief Technical and Planning Officer of the Board, made the presentation, a handsome television set, on behalf of the subscribers.

Miss **M. K. Tetlow,** for many years private secretary to Colonel Carr, was the guest of old friends at a luncheon party in Manchester last week to wish her 'au revoir' on her retirement from the North Western Gas Board.

GAS SALES IN U.S.A.

Sales by the American gas industry to ultimate consumers in July were 2,711 mill. therms, corresponding to a rise of 22.1% when compared with sales of approximately 2,221 mill. therms in the preceding July. Utility sales of natural gas were 23.9% higher, reaching 2,500 mill. therms; sales of manufactured gas declined 3.8% to 130.1 mill. therms and mixed gas sales were up to 18.5% to 81.3 mill. therms. The American Gas Association's July index of total gas utility sales is 277.0 (1935-39 = 100).

During the 12 months ended July 31, utility sales of gas aggregated 39,401 mill. therms, representing an increase of 13.1% when contrasted with sales of 34,829 mill. therms in the comparable cumulative period in 1949. Natural gas utility sales rose 14.4% to 35,922 mill. therms, while manufactured gas sales showed an increase of 0.4% to 2,252 mill. therms and sales of mixed gas were 1,228 mill. therms, a gain of 2.9%.

Diary

Nov. 20.—Eastern Gas Consultative Council: Connaught Rooms, 2 p.m.

Nov. 20.—Midland Junior Gas Association: Meeting, Wolverhampton, jointly with the Wolverhampton and District Engineering Society.

Nov. 25.—Scottish Junior Gas Association: Visit to works of Glenfield and Kennedy, Ltd., Kilmarnock.

Nov. 28-29.—Institution of Gas Engineers: Autumn Research Meeting, London.

Nov. 30.—North Thames Gas Consultative Council: Westminster City Hall, Charing Cross Road, 2.30 p.m.

Dec. 2.—Scottish Junior Gas Association (Western District): Joint Meeting with Eastern District, Heriot Watt College, Edinburgh. Paper by G. V. C. Davies (Humphreys & Glasgow, Ltd.).

Dec. 5.—London and Southern Section, Institution of Gas Engineers: 'Domestic v. Industrial Cost per Therm,' H. Bromley, Western Divisional Distribution Engineer, Southern Gas Board. Institution of Gas Enginers, 17, Grosvenor Crescent, 2.30 p.m.

Dec. 8.—Northern Junior Gas Association: Short Paper meeting, Darlington.

Dec 8.—London and Southern Junior Gas Association: 'Aerated Gas Burners,' E. E. Blandon and J. V. Rigg, 178, Edgware Road, W.2, 6.30 p.m.

Dec. 12.—Wales and Monmouthshire Junior Gas Association: Meeting, Aberdare. Paper by D. T. Phillips (Mountain Ash).

Dec. 12.—Midland Junior Gas Association: Meeting, Birmingham. Paper, 'Thirty Years of Carbonisation,' J. Foxton (Cheltenham).

ROCHDALE GASWORKS FIRE

Rochdale's gas supply was unaffected and no serious danger was caused when a holder containing 200,000 cu.ft. of gas blazed for two hours in a fire at Rochdale gasworks on November 3. Flames illuminated the whole of the town, and the glow was seen 10 miles away.

The fire broke out when escaping gas from a fractured temporary joint of a 30 in. main became ignited. Before the fire brigade arrived the burning gas set fire to a film of oil on a water seal surrounding the gasholder which was only a few feet away from an open trench in which the main lay.

Within a quarter of an hour of the fire breaking out, Mr. W. Blincoe, a shift foreman, had changed the town supply over to a stand-by holder, cutting off the gas from the leaking main, and off-duty employees helped the firemen as they fought the oil fire with foam appliances.

One fireman was injured when he fell into a water tank as he was running to telephone a message. After swimming to the side of the tank he was hauled out by two men and telephoned the message for more foam extinguishers before collapsing from shock and bruises.

Families living near the works were warned by police to prepare for evacuation, although there was little danger of an explosion.

Mr. C. H. Bamber, Group General Manager, stated that they could not determine how the escaping gas ignited. 'It could have been a firework, a spark from a watchman's brazier or the naked flame of a gas lamp,' he said. 'Earlier in the week some temporary preparatory work was carried out on the 30 in. main to bring into use a new gasholder, and the temporary joint on the main had given way.'

Mr. Bamber added that the gasholder was buckled, but the damage was not serious. It would not in any way prejudice the town supply, although there would be a slight hold-up of works reconstruction.

The job of bringing into operation the new gasholder was completed on November 5 according to schedule.

Costs of production have risen to such an extent over the past nine months that we have had to increase our Subscription Rates. The new rates will operate from the beginning of 1951 and are as follows:—Home and Empire 52/-. Foreign 60/-. The rates include postage. As before subscribers will receive free a copy of the *'Journal'* Calendar and Directory.

Parade of Past Presidents

Southern Association Makes Way for two District Sections

Sixteen Past Presidents of the Southern Association of Gas Engineers and Managers were among the guests at an informal luncheon which preceded the first Joint General Meeting of the London and Southern Section and the South Western Section of the Institution of Gas Engineers at the Connaught Rooms, London, on November 7.

BETWEEN the luncheon and the joint meeting there was a formal final meeting of the old S.A.G.E.M. to receive the report of the liquidators. Mr. J. H. Dyde, as President of the Association, presided at the outset and later handed over the control of the meeting to Mr. T. C. Battersby and Mr. H. H. Brown, Chairmen of the respective Sections.

Mr. **Battersby** presented Mr. Dyde with an oil painting as a token of the members' appreciation of the services he had rendered as the final President of the Southern Association. His year of office had been a busy one, said Mr. Battersby, for in addition to the ordinary duties of his office he had had the distinction of liquidating the Association and its assets. It had also coincided with his year as Junior Vice-President of the Institution of Gas Engineers. He recalled the very enjoyable day the members spent at Cambridge during the summer and said they were proud that yet another of their number was taking an active part in the affairs of the parent Institution. Mr. Dyde was a keen worker and a keen sportsman and he welcomed him as a new recruit to golf.

Rollicking Irish Meeting

Mr. **Dyde,** in returning thanks for the gift, said it had not been without feelings of regret that he had watched the preparations and plans which had gone ahead and culminated in the passing of the time-honoured name of the Southern Association of Gas Engineers and Managers. It might truly be said that he was the last President and the office Dyde with him. Having regard to those circumstances it had been extremely generous of them to provide him with such a memento. He had had two difficult things to do during his year of office; one to decide what should be the subject of his presidential address, and the other to decide on the form of the memento. Among the many outstanding experiences of the past year had been his visit to the meeting of the Irish Association—a happy and rollicking occasion—and he felt that the painting of an Irish scene would be a fitting reminder of that visit.

He was especially appreciative of all the work that had been done during the year by Mr. J. M. Webber, a most efficient and worthy Secretary, who had not spared himself to ease the task of the President. He welcomed into their respective offices Mr. Battersby—known to many of them as the 'Hertfordshire Atlas' from the fact that among other burdens he carried the responsibilities for gas supplies to no fewer than four new towns—and Mr. H. H. Brown.

The meeting accepted with regret the resignations of Mr. A. R. Burch (a member since 1903), Mr. W. B. Farquhar (a member since 1910 and President in 1918), Mr. Stephen Hay (1920), Mr. F. C. Robinson (1923), Mr. W. J. Burley (1941), and Mr. F. W. Delafield (1918). Sympathetic reference was made to the death of Mr. F. Blackburn, President of the Association in the early war years 1939, 1940, and 1941, and a member of the Association since 1928. Mr. Brown described him as an individualist and said that no meeting he attended or discussion in which he took part ever failed to be a lively one. He had characteristics which could not fail to impress those with whom he came into contact. When Exeter was heavily bombed in 1942 Mr. Blackburn was the first to offer assistance, informing him that a lorry load of men were already on the way from Plymouth to render whatever help they could.

The annual report and statement of accounts and the formal report of the liquidators with regard to the winding up of the Southern Association were adopted without comment.

The meeting also received formal intimation of the decision of the Council of the Institution of Gas Engineers approving the formation of the London and Southern Section and the South Western Section. The first officers and members of the respective management committees (as published in the *Journal* of May 31, p. 575) had been approved.

New Members

New members were elected as follows: London and Southern Section—H. B. Collins (Brighton), H. V. Heasman (Coulsdon), R. K. Harrison (Southampton), E. C. LeJeune (Blackheath). South Western Section—W. Dougall (Newquay).

Mr. **Dyde** stated that many former members of the Southern Association had not yet returned their forms of application for membership of one or other of the new sections. He explained the new rules and expressed the hope that they would submit their applications without delay.

Mr. **C. A. Deas,** Area Coke Manager, Eastern Gas Board, then read a paper entitled 'An Engineer's Thoughts on Coke.' (See pp. 276-281.)

A vote of thanks was accorded to Mr. Deas on the proposition of Mr. **H. H. Brown,** seconded by Dr. **S. Pexton.**

Presiding at the luncheon, Mr. **Dyde** said he felt some explanation was due as to why they were meeting that day. It had been traditional for the President of the Southern Association to have an autumn meeting, beginning with a formal lunch at which a large number of guests from kindred organisations and the Ministries were invited. Then there followed the Presidential Address. On this occasion they were to receive the report of the liquidators and the last annual report and statement of accounts of the old S.A.G.E.M., and in sequence the first joint meeting of the two new district sections of the Institution of Gas Engineers.

The Council of the S.A.G.E.M. had conceived the happy thought that the present luncheon should be an informal one and that they should invite as many former presidents and hon. secretaries as they could to join in a family party. As the last President of the Association and as one who not without regret had aided the present metamorphosis—he would not say demise—he was asked to take the chair.

Distinguished Guests

It was with great pleasure that they welcomed one of their Hon. Members, Mr. W. H. Bennett (Hon. Secretary in 1920-24), and they had also hoped to welcome from the west country Mr. J. H. Cornish (President, 1933), who after many years' service to the gas industry was elected an Hon. Member two years ago but who unfortunately at the last moment found it impossible to come. They had with them 16 past Presidents. One of them, Mr. W. A. Howie, had also served as Hon. Secretary for nine years, and two other past Hon. Secretaries.

Also among the guests were Mr. F. M. Birks, President of the Institution of Gas Engineers, who was one of themselves anyhow, and Dr. W. T. K. Braunholtz. They were linked to him by affiliation in former days and now their union had been blessed. He also welcomed the Chairmen, Vice-Chairmen, and Hon. Secretaries of the new newly-formed sections, his own personal assistant, Mr. G. R. Peddle, and the Press, present on that occasion as friends 'without fear or favour.'

Mr. Dyde proceeded to 'turn the pages of the Association's scrapbook' and to quote from some of the notable presidential addresses of the past, ranging from that of George (later Sir George) Livesey in 1886 to that of L. P. Ingram in 1949. He paid tribute to all past presidents for their contributions to the success of the Association and its value to the industry, and with them the hon. secretaries who, behind the scenes, unostentatiously, had done the hack work—the Howies, the Trewbys, and the Webbers. Together they presented a worthy example to the future.

Mr. **S. E. Whitehead** (President, 1937) briefly responded for the past presidents. Mr. **G. le B. Diamond** (1942) proposed the health of the final President.

Inauguration of Eastern Section

Former Secretary Becomes Chairman

As briefly reported in the emergency issue of the *Journal* of October 25, the first general meeting of the Eastern Section of the Institution of Gas Engineers was held at the Waldorf Hotel on October 20, under the Chairmanship of Mr. H. H. Redwood (Newmarket), who welcomed what he believed was the largest attendance ever recorded at an autumn meeting. Apologies for absence were received from Sir Edgar Sylvester, Colonel H. C. Smith (Chairman and Deputy Chairman of the Gas Council), Sir John Stephenson (Chairman of the Eastern Gas Board) and Mr. H. F. H. Jones (Chairman of the East Midlands Gas Board).

New Officers

Mr. **J. Hunter Rioch,** who had taken over the duties of Hon. Secretary and Treasurer on July 1, reported formal approval of the following first officers and members of Management Committee of the new Section: Chairman, H. H. Redwood; Senior Vice-Chairman, T. C. Battersby (Watford); Junior Vice-Chairman, F. A. Rhead (Peterborough); Immediate Past Chairman, C. E. Grimwood (Sudbury); Management Committee, J. Kennington (Grimsby), J. E. Young (Grantham), B. Clarke (Stamford), K. R. Mortimer (March), R. A. Weston (Norwich), and J. H. Greenacre (Great Yarmouth); Hon. Auditors, H. R. Wimhurst (Barton Mills) and A. W. Mather (Ipswich); Hon. Secretary and Treasurer, J. Hunter Rioch (Cambridge); District Member of Council, Institution of Gas Engineers, H. H. Redwood.

Sympathetic reference was made to the death since the last meeting of Mr. M. Smith, Mr. R. J. Milbourne, and Mr. G. W. Allott.

Mr. C. A. Deas, Coke Officer, Eastern Gas Board, and Mr. L. F. S. Stanford (Wisbech) were elected members of the Section.

On the motion of Mr. **E. H. Winch** (Cambridge) the meeting approved a donation of £30 to the Benevolent Fund of the Institution of Gas Engineers, the same amount as was given annually by the former Eastern Association of Gas Engineers and Managers. Dr. W. T. K. Braunholtz, Hon. Secretary of the Fund, expressed appreciation and referred to the increased need for support.

The **Chairman** presented a silver salver to Mr. C. E. Grimwood in appreciation of his services as President of the former Association.

Mr. **Grimwood,** having briefly acknowledged the gift, asked Mr. Redwood's acceptance of a cheque in token of the members' appreciation of all the excellent work he had done as Hon. Secretary of the old Association over a period of 12 years. He recalled that his own grandfather carried out a similar duty on the retirement of Mr. H. Wimhurst from the office of Secretary in 1894.

Mr. **Redwood,** in acknowledgment, thanked all the presidents, officers and members who had made his work so pleasurable; he also thanked Mr. Hunter Rioch for many words of encouragement.

Proceeding to outline the programme of the Section for the ensuing year, the Chairman said it was intended to have one meeting given over entirely to the presentation and discussion of a technical paper, to be followed later by the annual general meeting of the Section.

On the proposition of Colonel **J. Kennington** it was unanimously agreed to grant affiliation to the Eastern Junior Gas Association, whose President, Mr. **G. Davies,** expressed thanks and pledged loyal support.

Mr. **J. H. Dyde,** M.SC., Senior Vice-President of the Institution of Gas Engineers, then gave an address on 'The Institution and its New District Sections,' which will be published in a later issue.

Mr. **B. Clarke** proposed a vote of thanks to Mr. Dyde for his address which, he said, had enabled the members to appreciate more clearly the functions of the Institution. Now that the former Eastern Association had given place to the Eastern Section they should become more aware of their privileges and more conscious of their responsibilities. There had been a sense of remoteness in the past which should be to a large extent overcome in the future.

A Wise Step

The meeting was preceded by a luncheon at which the principal toast, that of the Eastern Section of the Institution of Gas Engineers, was proposed by Mr. **F. M. Birks,** C.B.E., President of the Institution. He expressed confidence that the change-over from district association to a Section of the Institution was a wise step and would bring added strength and usefulness both to the Section and to the Institution. He believed it would go forward proving as useful in the future as the Eastern Association had proved itself in the 62 years of its existence.

Their inaugural meeting was an important milestone, because the Section would provide a ground where in the course of time the younger recruits to the industry would have an opportunity of meeting and getting to know their confreres. It would also provide a forum where members could discuss freely and at length technical papers, not only those written by themselves, but also papers which had been presented by the main Institution at its annual and autumn meetings. It was very necessary that all the information now freely available should be analysed, thoroughly understood, and its implications appreciated not by a few but by as many as possible of the members.

The **Chairman,** responding, said that although the Eastern Section was an infant of only four months it was so lusty that it already boasted some 120 members, all anxious to play their part in supporting the parent body and, ultimately, the advancement of the industry. As was the case with all industries showing advancement, the necessity for specialisation arose, coupled with the tendency for larger units and centralised controls, and he suggested that the Section meetings would make it possible for the specialised sections of the gas industry—manufacture, distribution, and utilisation of its products—to be subjects for complete presentation and discussion, not only by those responsible for the operation of plant and apparatus but also by those responsible for their design and manufacture. Papers which had been presented at Institution meetings could well be reconsidered and discussed at Section meetings.

Mr. T. C. Battersby proposed the toast of the guests, among whom he named Mr. Birks, Mr. Dyde, Dr. Braunholtz, Mr. R. N. Quirk, Under-Secretary, Gas Division, Ministry of Fuel and Power, Major C. Hyde, Controller of Gas Standards, Mr. J. S. Smith, Assistant Secretary, Gas Supplies, Mr. G. Davies, President of the Eastern Junior Gas Association, and Mr. H. H. Brown, Chairman of the South Western Section of the Institution of Gas Engineers.

Mr. **R. N. Quirk,** Ministry of Fuel and Power, in a brief response on behalf of the guests, said the functions of the officials of the Ministry were to help the gas and other fuel industries, and to guide them when they could.

Protest Against Price Increase

Protests have been made in the Sunderland area against the imposition of increased charges by the Northern Gas Board. When a letter from the Northern Gas Consultative Council explaining the reasons for the higher prices was read to Sunderland Rural District Council, there were objections from all members and it was decided to seek the co-operation of other local authorities in an effort to have the charges reduced.

At a meeting of Sunderland Town Council, Councillor R. S. Robinson drew attention to what he described as 'large increases.' In reply, Alderman Joseph Hoy, who is Chairman of the Consultative Council, said 'I am very anxious that the machinery established by the Government shall be used if any organisation, authority or person feels aggrieved.' He added that if there was a case to be stated against the Board it should be raised by the Corporation's representative on the Sunderland Consumer Committee and through that medium presented to the Consultative Council.

Isle of Wight Integration

REPORTING at the autumn meeting of the Southern Gas Consultative Council held at Reading on the proposed closing of the East Cowes gasworks and showrooms, Alderman J. W. Moore, Chairman, said they had previously been told of the desirability of integration in the Isle of Wight. At present the Island had seven gasworks. It was proposed that the East Cowes works and offices should be closed as from January 1 next, with the exception that the offices should be opened on Monday and Friday afternoons, and on Wednesday mornings. It was considered by the Southern Gas Board that this would be sufficient for consumers to attend for the payment of accounts and other business. Where it was possible to effect economies of this sort, the board was anxious to do so.

The Council approved the proposal.

Maximum Membership

The **Chairman** said that under the Gas Act the Consultative Councils had to have a minimum of 20 members and a maximum of 30. The Minister of Fuel and Power had now decided to bring the Southern Council membership up to the maximum. Three new members had already joined the council, and in correspondence with the Ministry it had been suggested that the Chichester and Andover districts should be represented. The Minister was approaching the local authorities for those places with a view to making appointments.

Colonel **Durham** (Portsmouth) pointed out that Bognor Regis was a large area, and it had been suggested to him that it should be represented on the Council.

The **Chairman** said when the Ministry told them that they desired to bring the council's numbers up to 30 they studied the map carefully and suggested certain places. The Ministry had acknowledged that by appointing three members out of the five vacancies, and they hoped in a day or two to hear of the other two appointments.

Letters were received from the Winchester and Poole Corporations with regard to the price of gas. The point was raised as to whether there would be a uniform price throughout the country, but they had been answered in the negative. 'We hope the time will arrive when there will be a uniform price in each area, but there is no possibility whatever of a uniform price throughout the country,' the **Chairman** said.

No Applicants

The Easthampstead (Berks) Rural District Council reported difficulty in engaging a man for the maintenance and lighting of street lamps at Crowthorne and Sandhurst. It was stated that previously the job was a part-time one in conjunction with Frimley and Camberley, but the latter had now decided to maintain their own lamps. The council's surveyor had advertised for a full-time man at £5 4s. per week, which was more than the J.I.C. rate, but there had been no applicants.

The Divisional General Manager, Mr. F. G. Symons, had written that it might be possible for an employee to carry out the work on an overtime basis, provided the parish councils concerned were prepared to foot the bill.

Referring to complaints of delay in servicing housing estates at Crondall and Eversley, under the ægis of the Hartley Wintney R.D.C., the Aldershot undertaking reported that at Eversley, although the premises were not yet occupied, five meters were installed up to the previous day and a sixth was being installed on that day. Four more would be installed as the services were required and there would be no delay. At Crondall six houses should be ready in a week's time, and all outstanding work for supplies would be completed by then.

Mr. **J. E. Lay** said he had recently communicated with the Northern Divisional General Manager with regard to a large gasholder to be erected at Didcot. The Wallingford R.D.C. was perturbed that the holder should be a blot on the landscape. Although the General Manager was unable to say that anything could be done in the matter, he thanked him for his courteous reception. One suggestion had been made that two smaller holders might avoid the necessity of having a very big one.

The **Chairman** said Oxford area was a big problem for the board, but they were hoping to solve it without hurting the Oxford City Council or the district councils. The board looked for an amicable settlement, but there were many difficulties, he added.

Compensation Values

The Minister of Fuel and Power has declared by Order that the values of the undermentioned securities have been determined under Part II of the Act, the Conversion Date being November 1, 1950, on which date the securities will be extinguished and the holders thereof will become instead holders of British Gas 3% Guaranteed Stock 1990-1995 (issued at par and redeemable at par) calculated in accordance with the rates mentioned below.

COMPANY	COMPENSATION VALUE
Cannock District 4½% Red. Deb. (£100 unit)	£101
Garw and Ogmore 10% Max. Ord. (£10 unit)	£19/10/–
Gas Consolidation 3½% Red. Deb. (£100 unit)	£100/15/–
Do. 4½% Cum. Pref. (£1 unit) ...	23/–
Helston and District Ord. (£1 unit) ...	5/–
Mossley and Saddleworth 4½% Cum. Pref. (£1 unit)	22/6
Sedbergh 4½% Cum. Pref. (£5 unit) ...	£5/10/–
Do. 7% Max. Ord. (£5 unit) ...	£7/10/–

Where payments of interest made on or before November 1, 1950, by the Gas Council under direction of the Minister are not sufficient to discharge the interest due for the three successive six-monthly interest periods ended October 31, 1950, the Gas Council will, on or about December 1, 1950, make good the deficiency by paying to holders of the securities as at September 26, 1949, March 27, 1950, and September 25, 1950, any balance due for the first, second and third periods respectively. The fourth six months' interest will be paid on the British Gas Stock on May 1, 1951.

The usual procedure regarding transfers, the exchange of certificates, etc., will apply on and from the conversion date to holdings of British Gas Stock issued in exchange for the said old securities.

Croydon Stock

For each £100 Sliding Scale stock in the Croydon Gas Company holders are to receive as compensation Gas stock to the nominal value of £138. The Maximum Dividend stock is valued at £115, the 4% preference stock at £101 and 4% redeemable debenture stock (1950) at £100 10s.

Chemical Engineers from the Midland area were present in large numbers at Birmingham University on October 14 at the inaugural meeting of the Midland Branch of the Institution of Chemical Engineers. The President of the Institution, Professor D. M. Newitt, M.C., F.R.S., was in the chair, and there were present Vice-President, Mr. M. B. Donald; the Hon. Secretary, Mr. L. O. Newton; General Secretary, Dr. J. B. Brennan; together with Mr. E. J. Dunstan, Chairman, and Mr. J. McKillop, Past-Chairman, of the North Western Branch.

A Deputation representing all political parties has been selected by Stockton-on-Tees Town Council to protest to the Ministry of Fuel and Power and the Ministry of Town and Country Planning against the erection of a 160 ft. high gasholder at Portrack, Stockton. The Council is objecting on the grounds that the holder will overlook a proposed new school and is planned in an area scheduled for housing development. The Chairman of the Planning Committee, Councillor Milne, complained that the Ministries were making a mockery of the 1947 Town and Country Planning Act.

With the Opening Sessional Meeting of the Illuminating Engineering Society on October 10, Mr. L. J. Davies, M.A., B.SC., F.I.E.S., took office as President for the 1950-51 session. Mr. Davies, who is Director of the Research Laboratory of the British Thomson-Houston Co., Ltd., has for many years been actively concerned with lamp design and recently has been particularly interested in the application possibilities of fluorescent lamps. The research laboratory under his control covers a wide field and has interests in electrical engineering as well as lamps and lighting.

A Fine Record

Minister Praises Coke Oven Industry's Efforts

THE President (Mr. J. L. Lambert, M.I.CHEM.E.) and members of the Coke Oven Managers' Association, assembled at their Annual Dinner at the Waldorf Hotel, London, on October 26, entertained many distinguished guests, including the Minister of Supply (the Rt. Hon. G. R. Strauss, P.C., M.P.), Sir Arthur Street (Deputy Chairman, National Coal Board), Mr. Robson Brown, M.P., Presidents and other representatives of kindred institutions, representatives of education, and overseas visitors and members.

The **Minister of Supply** proposed 'The Coke Oven Managers' Association.' He said he was also glad to be present because the industry, the profession, the work of the members of the Association were so important and so closely associated with his Department. That work was the basis on which the whole iron and steel industry depended; the contribution they were making and had made to that industry was considerable, and it had not always been fully recognised. He welcomed the opportunity of expressing the gratitude of the Government for all they had done, during recent years in particular, in helping to achieve the remarkable successes, the records of output, in the iron and steel industry, without which the recovery of this country during the post-war years would have been quite impossible.

Technical Advances

The iron and steel industry, he continued, during recent years had been very much in the public mind, for a number of reasons, quite apart from the political. Some aspects, and particularly the coking aspect, of that industry had not been talked of and written about and praised, in his view, as much as it ought to have been, and he did not think its part had been fully recognised in the achievements of the industry; nor had there been so widely recognised as they should have been the remarkable technical advances which had taken place during the past many years in the practice of the carbonisation industry. These were the result of a great deal of research, and research wisely applied. That research and the application of it by the carbonising industry had contributed in striking degree not only to the great output records of the iron and steel industry, but to the prosperity of our nation as a whole.

He was particularly interested to learn that the Association, in the very early days before the value of technical training and education was fully appreciated, had taken a lead in that matter and had done all it could to encourage the technical training of its members and the workers in the industry. He was glad to learn in particular that the Association, in co-operation with other bodies, including the N.C.B., launched last year an excellent scheme of scholarships. The Minister congratulated the Association and the industry not only on their efforts to raise technical skill, but also on their record of industrial peace, which was well established in the industry.

All were aware of the difficulties confronting the Government in recent years, in view of the clamant demands of all sections of industry for capital re-equipment, and the great demands for improved social conditions at home and for exports abroad. The Government had done its best to ration the resources available among all those who had claimed their share, and the result was, he feared, that very few people were satisfied. On the other hand, it was certainly true to say that in all sections of industry re-equipment had in fact gone on very fast indeed, and he believed that was true of the coke oven industry. For many years after the first world war little was done to re-build the ovens or to build new ones; and during the last war they had had the same difficulties. But he believed it was fair to claim that the amount of resources which, according to the Government plan, had been devoted to the building of new ovens and the reconstruction of old ones had been considerable. Many new ovens had been built and others reconstructed. He was told that in the steel industry since the war more than 300 ovens had been reconstructed and that the number replaced was 800. The National Coal Board and independent undertakings had built 250, and there were 300 under construction. There were plans for many more; and the expenditure involved was in the neighbourhood of £22 mill.

The **President,** in his response, said the Minister had spoken of the great importance of coke ovens to the iron and steel industry, and it was appreciated that coke was one of the most important products of our industrial age. It was the keystone of modern blast furnace practice; without strong metallurgical coke the development of the blast furnace to its present size and speed of operation would not have been possible. In the early 1930's, when the leading iron and steel companies had commenced their large-scale development programme, it was realised that, in order to produce steel competitively, the available fuel in all its forms must be conserved, and used scientifically, with that end in view, modern combined coke ovens were installed as part of a well-balanced, integrated, iron and steel works. The rich coke oven gas, either separately or mixed with blast furnace gas in varying proportions, had replaced producer gas; and blast furnace gas became a more valuable fuel than ever before. By virtue of the combined oven the fuel balance was so closely regulated that, compared with steel works practice of something over 20 years ago, the modern integrated works were monuments of fuel efficiency. In more recent years the use of liquid fuels for smelting purposes had been developed, and coke oven gas had been released for town and industrial uses.

More Plants Needed

Speaking of the coke ovens of the very latest type which were being constructed by the N.C.B., he said that unfortunately those new plants would apparently only replace old ones and would not appreciably increase carbonising capacity. The Association wished to see more plants in operation to carbonise a far greater tonnage of coal and to produce greater tonnages of smokeless fuel. Its members wished to be able to point to an ever growing industry and

Our photograph, taken on the occasion of the fourth Conference of the British Coke Research Association at the Beveridge Hall, University of London, on October 25, shows Mr. G. A. Hebden (Chairman of the Association), Dr. A. R. Powell (The Koppers Company, Inc., Pittsburgh), Monsieur J. L. Sabatier (Directeur de l'electricite et de la carbonisation, Charbonnages de France), and Mr. G. W. Lee (Director of the Association).

to say that it was the reason for our clearer atmosphere, our cleaner towns and cities; there, indeed, was a reason for a healthier and brighter people. The greatest disadvantage to urban development was the smoke nuisance, and he asked all concerned to go forward as ambassadors for domestic coke, to recommend and advise its use.

Mr. **W. Jeffery,** B.SC., M.INST.F., proposed the health of the guests. He remarked that it was not unusual for the Association to entertain a Cabinet Minister, and they were honoured that evening to welcome the Minister of Supply. In 1946 the Association had entertained the Minister of Fuel and Power. That was just before the vesting of the collieries under the Coal Mines Act, when half the members of the Association were wondering what the future had in store for them. Speaking as one of that number, he was not quite sure whether they yet knew the answer. On the present occasion the other half were similarly situated and, just as Mr. Shinwell was the responsible Minister four years ago, on the present occasion they welcomed Mr. Strauss, on whom rested the responsibility for putting into effect the Iron and Steel Bill. The Association were also particularly honoured to welcome two overseas visitors, representatives from countries with whom they were allied in the late war, and who had come to London to take part in the previous day's technical conference of the British Coke Research Association, to prove that the same alliance was to be perpetuated in more peaceful pursuits. They were Dr. A. R. Powell, of Pittsburgh, and M. Sabatier, of the French National Coal Board. Dr. Powell's name had for long been familiar, formerly as one of the team of workers in the U.S. Bureau of Mines; in later years he had been much more actively associated with carbonisation matters in his position as Associate Manager of Research for the Koppers Company of America. M. Sabatier was an overseas member of the C.O.M.A., although on that occasion he was a guest. He would be remembered by all who were interested in carbonisation for his paper to the World Power Conference last summer. Two other overseas members were M. Simonovitch and M. Devos, both from Belgium. A Spanish member had also sent a representative; and the Association welcomed Mr. Keith Butler, from Australia.

Prominent personages were present from the iron and steel industries and from the National Coal Board. The Association was also proud to welcome some of the President's old colleagues, to whom it could show tangibly the honour it had done him and the high regard in which he was held. As always, there were present friends from the constructional and allied firms, men whose practical ability and ready advice were appreciated. And there were executives from various research associations and academic establishments. There were representatives of kindred bodies—the Institution of Gas Engineers, the Institution of Chemical Engineers, the Institute of Fuel, etc. And the Association had always numbered among its friends many Members of Parliament. Mr. Robson Brown, M.P., as Chairman of the Joint B.C.I.A./N.C.B. University Scholarship scheme, had done much to ensure the success of that new venture.

Dr. **D. T. A. Townend** (President, Institute of Fuel), responding, referred to the close collaboration between the profession and the universities. Speaking of Leeds University in particular, where he had been privileged to spend eight very happy years, he was pleased to remember that many members of the Association had received their graduate training there. Many of the universities had been fortunate in having Advisory Committees, to which members of the C.O.M.A. devoted considerable time; and he expressed to one of them, Mr. George Hebden, his gratitude for all the assistance given to himself when he went to Leeds University. And as chairman of the Fuel Advisory Committee at Sheffield University, he thanked the Association, on behalf of the University and of Professor Sarjant, for the support it was giving there.

Dr. **A. R. Powell** and Mr. **Butler** also responded to the toast.

A prize of £25 was offered by Mr. G. A. Hebden for competitive papers. The President recalled that Mr. Hebden was a Past President of the Association, one of its oldest members, and Chairman of the British Coke Research Association, and had always had very much at heart the education and welfare of the younger personnel in the industry.

The prize had been awarded to Mr. E. W. Wright, of the Barnsley District Coking Company, for a paper on 'The Production of Metallurgical Coke in a Modern Coke Oven.' The President presented the cheque to Mr. Wright, and said that Mr. Wright's Company had doubled the value of that prize.

Finally, a toast to the health of Mr. Lambert was proposed by Mr. A. H. Winspear, the Immediate Past-President.

North of England Association

GATHERED for their Autumn Meeting at the Croft Spa Hotel, Darlington, on October 6, members of the North of England Gas Managers' Association were unanimous in their decision that application should be made to become a District Section of the Institution of Gas Engineers.

After the meeting the members were entertained at luncheon. The guests included Mr. E. Crowther, Chairman, Northern Gas Board; Alderman C. R. Flynn, O.B.E., J.P., Member, North Eastern Gas Board; Mr. J. H. Dyde, Deputy Chairman, Eastern Gas Board; Dr. W. T. K. Braunholtz, O.B.E., Secretary, Institution of Gas Engineers; Mr. C. M. Spielman, Managing Director, and Mr. A. G. Grant, Director, Whessoe, Ltd.

Expressing a welcome to members and guests on behalf of the Northern Gas Board, Mr. **E. Crowther** assured the gathering of the board's support to Mr. Wilson during his presidency. He believed it was 20 years since a Darlington official had been President of the Association. Over the period there had been great development in the Darlington undertaking. Evidence of this lay in the fact that gas sold in a year had increased over 2½ times, and the maximum day had increased from 2.8 mill. to 7 mill. cu.ft. Continuing, Mr. Crowther said that in the President's connection with the Darlington undertaking he had carried to fruition many schemes for the improvement of gas production and service to consumers. One of the latest enterprises was the linking up to the Darlington Division of a gas supply from the Evenwood coke ovens. The big industrial estate at Aycliffe was now relying more and more on gas from the Darlington Division.

The **President** referred to the deaths during the past year of the following members of the Association: Mr. C. C. Walmsley (Sunderland), Mr. C. F. Barrow (Sunderland), and Mr. S. Sadler (Associate Member).

Mr. Wilson then gave his presidential address, after which a vote of thanks was moved by Mr. **G. Perks** (Stockton).

The **President** put the resolution to the meeting that the North of England Association should make application to become a District Section of the Institution of Gas Engineers. Members were unanimous in their vote that this application should be made.

Mr. **J. H. Dyde,** Deputy Chairman, Eastern Gas Board, said he was honoured to represent the Institution of Gas Engineers at the meeting and he brought with him the best wishes from Mr. F. M. Birks, President of the Institution. After the luncheon which followed the meeting, Mr. Dyde moved a vote of thanks on behalf of the guests to the Darlington Division and the Northern Gas Board for their hospitality.

In the afternoon members went into Darlington to visit the works of Whessoe, Ltd. On arrival, they were welcomed by Mr. C. M. Spielman, Managing Director, Mr. A. G. Grant, and Mr. K. W. Francombe. The various parties were conducted round the works, which occupy a site of some 20 acres, and they were most impressed by the modern well laid out works planned for the fabrication of medium and heavy plate-work and equipped with all modern facilities, including one of the finest heavy duty welding shops in the country, and the latest types of X-ray apparatus and fully equipped testing laboratories. Some 1,400 skilled personnel are employed in the works and erection departments, and there is a comprehensive scheme for the recruitment and training of apprentices.

After completing their tour of the Works, the visitors were entertained at tea by the firm.

Mr. **Spielman,** addressing the members afterwards, said he felt that engineers and contractors should come together and meet in a friendly way; such meetings were of use and of interest, as well as a great pleasure. In their works they used a considerable quantity of gas, and when the extensions were completed, they would in due course be using approximately 850,000 cu.ft. of gas per day. This was about a quarter of the entire output of the Darlington undertaking in pre-war days.

Wales Group Leaders Confer with Area Chiefs

Intensive Agenda at Aberystwyth

By the Assistant Editor

THE fourth conference of Chairmen and Conveners of Group Committees and Group Accountants in Wales and Monmouthshire was held at Aberystwyth on October 13-15 under the chairmanship of Mr. T. Mervyn Jones, Chairman of the Wales Gas Board. All the members of the board were present except Sir William Jones, who sent apologies and good wishes.

After Mr. Mervyn Jones had welcomed officials and visitors, the conference listened with interest to a recorded message from Sir Edgar Sylvester, Chairman of the Gas Council. In it Sir Edgar said that although in some large centres the industrial load had been highly developed, in the country as a whole their business depended on maintaining and increasing the domestic load, and he noted with pleasure the attention that was to be paid to that vital section of their business. In glancing through the papers to be presented he had noticed a schedule of sales of gas expressed as the average taken by domestic consumers; he was glad to see this factual approach to the problem. It was almost more important to consider how much gas was used in the home than it was to record the sales of appliances.

He would not like anyone to feel that because he had emphasised the domestic field he underestimated the value of the non-domestic loads. Industrial and commercial applications of gas were unquestionably an important part of the present structure, but he underliped the fact that if they let the domestic load slip they would destroy the foundation on which the whole of their business was built.

As usual there was an intensive programme. From the opening on the Friday until the closing luncheon on the Sunday, 14 papers were presented; there was an 'Any Questions' session, an inspection of the board's first mobile showroom, and a series of informal talks.

Administration

The first paper was by Mr. C. B. Mawer, Secretary of the board, on 'Administration.' In too many cases, he said, monthly sales of appliances are not good enough, even after taking into account special circumstances and difficulties in certain districts. Sales promotion and publicity in general should be considered at frequent intervals and assistance and advice should be given by group committees to managers of undertakings not reaching the committees' required standard.

Showrooms should reflect the efficiency and progress of the industry. There must be removed the erroneous impression of electricity as the modern fuel industry with gas belonging to the past. Although in the past there has been reluctance to install electric lighting in showrooms and offices the board has no objection to this being carried out, subject to group committee approval of the necessary expenditure.

Group committees have been asked to consider the appointment of home service advisers and cookery demonstrators on a group—or combination of groups—basis. The value of the mobile showroom is increased by the added attraction of cookery demonstrations and wherever possible the arrival of the mobile showroom in any district should be accompanied by the local, or imported, cookery demonstrator.

The national colours incorporated in the board's seal, red and green, should be used in preference to any other colour or combination of colours. In future all showrooms, vehicles, exterior wood and ironwork of offices and works will be so painted.

Home Service

The second paper was by Miss B. Blythe, Home Service Adviser, Rhyl and Colwyn Bay Groups, on 'Home Service,' with particular reference to the board's new mobile demonstration theatre and showroom, which has been handed over to the eight groups in the northern part of the area. When the second showroom is ready it will be at the disposal of the 10 groups in the south.

The travelling showroom will be visiting the district perhaps once or twice a year and it is essential that it should be put to the fullest possible use. Smooth running during the visit of the showroom depends on all details being finalised well ahead. The local manager should ensure that the site selected, for which permission will have been previously obtained, is large enough for the public to move round freely. The site should be on reasonably hard ground and large enough to allow the showroom to be manœuvred into position with ease. It should be in a central position of the town or housing estate, with a supply of water nearby and drainage for waste if demonstrations are held, and preliminary decision should be reached as to whether town or Calor gas is to be used.

The driver needs the assistance of three men from the local undertaking during erection and dismantling, each of which usually takes four hours; it is also necessary to have a second driver to assist with moving from one site to another, usually provided by the undertaking receiving the showroom.

Direct results of home service work, concluded Miss Blythe, can never be estimated. Six months may elapse before a housewife decides to purchase the cooker she saw at the demonstration. That sales are increased through home service is undeniable, and 12 months' experience of this type of work has proved in North Wales that this service is needed and appreciated. Home service, when efficiently organised, should be the personal liaison between the consumer and the industry.

Miss Blythe was wearing for the first time an attractive new uniform designed for the use of cookery demonstrators in Wales. The board had held a competition in designing a suitable uniform and entries had been received from all parts of Wales and outside, the result of the adjudication being the acceptance of a design from Miss Cane, daughter of the Convener of the Newport Group Committee, who is herself in the service of the board as secretary-typist to the Chief Accountant.

During the informal discussion on Miss Blythe's paper the question was raised whether the one design would be appropriate for showroom attendants as well as cookery demonstrators. Miss Blythe, the only lady present, agreed with several of the speakers that while the same basic design was suitable there should be some distinguishing colour or mark for those occupying the more responsible positions—as a hospital sister is distinguished from a nurse. It was left to Miss Blythe and Miss Cane to talk the matter over and make a recommendation.

Legal Matters

The first session of the conference concluded with a short paper on legal matters by the board's solicitors, Mr. D. H. Griffiths and Mr. T. O. Jones. First they set out a list of the various notices which the board is required to exhibit at each of its undertakings, some at the principal entrance, others 'in a prominent position where they can be easily read,' and the rest in workrooms. Secondly, they defined the procedure to be followed in announcing changes in declared calorific values.

Dealing with town and country planning it was pointed out that each planning authority must before July 1, 1951, prepare a development plan of its area showing the way in which it is proposed that land in the area should be used. The plan is of importance to the board for two reasons:

(a) The plan might propose that part of the board's land should be used in a manner not in accordance with the board's wishes. For instance the future use of one works site was shown on one plan as a playing field.

(b) The planning authority can designate land which the board will require within the next 10 years to carry out its functions as subject to compulsory purchase. If this is approved by the Minister then the plan has the effect of a compulsory purchase order so far as that piece of land is concerned. The use of this power is obvious.

Planning permission is fundamental to any development scheme. It is not necessary always to submit detailed plans. If the manager on the spot wants to know whether a particular plot

can be used for a particular purpose, the barest details giving the nature of the project only will suffice.

The Highways Bill which will make radical changes in the board's rights *vis-a-vis* highway authorities has obtained its Third Reading in the House of Lords and goes before the Commons in the coming session.

Engineering Problems

The Saturday morning session was devoted to a series of four papers by Mr. S. L. Wright, the board's Gas Engineer; Mr. W. R. Branson, the Planning Engineer; Mr. W. T. Hird, the Distribution Engineer; and Mr. W. H. Tarn, the Industrial Gas Development Engineer.

In his summary of gas engineering matters, Mr. Wright said experience already gained indicated that it may be advisable in the initial stages of the introduction of the technical advisory service for group technical assistants to limit routine testing to once per fortnight at each undertaking and to spend all available spare time in tuning up one undertaking at a time, starting with those undertakings which are most completely equipped with the necessary means of control while the other undertakings are having the equipment brought into working order or installed.

Some technical assistants have already had refresher courses in gasworks laboratory practice at the Grangetown gasworks laboratory of the Cardiff undertaking. Facilities for advanced training in gasworks technical practice are being provided at Pontypool, and arrangements are also being made for a training centre to be available in North Wales.

Managers in one particular group, said Mr. Wright, have expressed their own satisfaction with their present standards of gas supply and their reluctance to have younger men advising them what to do. Another manager has referred in his monthly report to the 'group gas examiner.' Both are in error, probably due to their lack of appreciation of the high standard of gas supply that is the aim of the board, because of which the technical advisory service has been formed. As has been said before, 'in Wales the manager is his own gas examiner.'

Mr. Branson's paper was devoted to questions of authorisations and material allocations. He referred particularly to an offer of a quantity of steel pipe for 1951 delivery and stated that the board had intimated to the Gas Council that it was prepared to place orders for a quantity of this material, about two-thirds of which was already earmarked for specific projects, leaving a third for other work.

Unaccounted-for Gas

Mr. Hird, in his paper on 'Distribution' pointed out that on June 14 last details of the board's policy in respect of the supply of gas to new houses and new housing estates were circulated to all undertakings. The board has now also adopted a scheme of standard terms for the supply of gas to existing houses. Complete details of both schemes together with some explanatory notes were set out in the paper.

To the manager of a gas undertaking two of the most important figures necessary in assessing the state of development and progress of the undertaking are sales per domestic consumer and unaccounted-for gas. If the former is high or is moving upwards and the latter is low or moving downwards the undertaking should prosper; if either or both is reversed the outlook is not good.

Average sales of gas per domestic consumer for the whole of the board's area are shown to be 103 therms per annum. There are some undertakings with figures as low as 45, 49, and 54 therms and others as high as 159, 153, and 145 therms a year. As a minimum, said Mr. Hird, all undertakings should be able to reach in the not too distant future a figure of at least 100 therms per domestic consumer, the ultimate expectation of development being well in excess of this. Increases will be achieved only by ensuring that the quality of the gas and the pressures available are at all times adequate to all consumers and that an energetic appliances sales and consumer service policy is adopted. The whole resources of the group committee and the board are available in achieving these aims in all undertakings.

The author expressed concern at the loss represented by unaccounted-for gas, the result of many different causes, some of which are common to all undertakings, others of which vary. It should be possible for each manager to decide which causes are the most likely in his undertaking and to prepare plans for improvement. The loss in Wales is high and it is of vital importance to the board's prosperity that urgent and energetic action should be taken to reduce the loss.

During the discussion Mr. Hird, emphasising the importance of the domestic load, spoke of a case in which the laying of 700 yards of main to supply gas to only ten houses had been justified by the fact that with whole house-heating schemes each house showed a consumption of some 1,000 therms a year.

Tribute was paid by members of the board to Mr. Hird for the work he had done in connection with the supply of gas to housing estates in the last few months.

Problems concerning unaccounted-for gas were discussed at some length. While the conference agreed on the necessity for an all round improvement it was recognised that no fixed amount of saving could be budgeted for.

Industrial Gas Development

In his paper on 'Industrial Gas Development,' Mr. Tarn said the Welsh Board of Health and various sanitary authorities have recently stressed the importance of improving the standards of bakehouses and dairies. The gas baking load is developing rapidly and it is business worth cultivating as the industry can make a valuable contribution to more hygienic conditions. Efficient ovens are becoming available which will enable business to be obtained at a price of gas which was at one time considered exorbitant. The board recently participated in a bakers' exhibition at Cardiff where it was able to arrange for a working exhibit and baking demonstrations. Results were exceedingly encouraging. At the headquarter's industrial centre there is a 4-deck bakers' oven and, on application there, arrangements can be made for the loan of any bakery equipment should it be desired. The official attitude to the Milk Act is being sought and will be circulated in due course. It is probable that gas for sterilising and pasteurising will be developed.

Negotiations have been opened with the Association of Heating, Ventilating, and Domestic Engineering Employers regarding the amount of work to be carried out by heating engineers and gas undertakings. It appears that gas engineers will be asked to connect up, test, and maintain all gas-fired installations, in which case more satisfactory conditions should result. Arrangements are being made for notification by manufacturers of catering equipment of any installation within the area. This will be passed on to the undertaking concerned and should prevent installations being started or completed without the industry having the necessary information to ensure that adequate supplies will be available.

'We should go out and get business, and not wait for it to come to us,' was Mr. Tarn's closing exhortation. Tremendous increases were experienced during the war years and they were apt to sit back and take it for granted that they would get new business, but oil and electricity were likely to become greater competitors than in the past.

Accountancy

Mr. Trevor A. Morgan, Chief Accountant, in a paper on accountancy, said all undertakings' accounts had been received and summarised, merged with headquarter's accounts, and a first draft of the board's accounts prepared for the initial 11 months of its operation. Having regard to the difficult conditions of the period of the accounts and the steady increases in costs experienced the results are not unsatisfactory. The work of the group accountants, many of whom took up their appointments either towards the end of the period or indeed, in some cases, after the end of the period, has been entirely praiseworthy. They would equally, it is felt, desire to record a tribute to the work of the internal auditors, whose advice and often practical assistance in the actual preparation of accounts have always been available.

The problems of the second year, it is thought, are likely to be less formidable than those which have had to be faced during the first year.

Mr. Morgan, in presenting the paper, said it might interest those who were interested in sporting terms to know that Wales was actually fourth in the running for sending in its area accounts.

The paper led to a detailed discussion in which it was indicated that the financial results of each individual undertaking were unlikely to become available for publication. The Chairman emphasised that the board had to pay attention to a global picture of the financial results, and he suggested that every responsible officer should be inspired with a 'divine discontent.'

The 'Any Questions' session, as usual, proved very popular. Questions ranged over relationships between group committees and the local committees of the gas consultative council the introduc-

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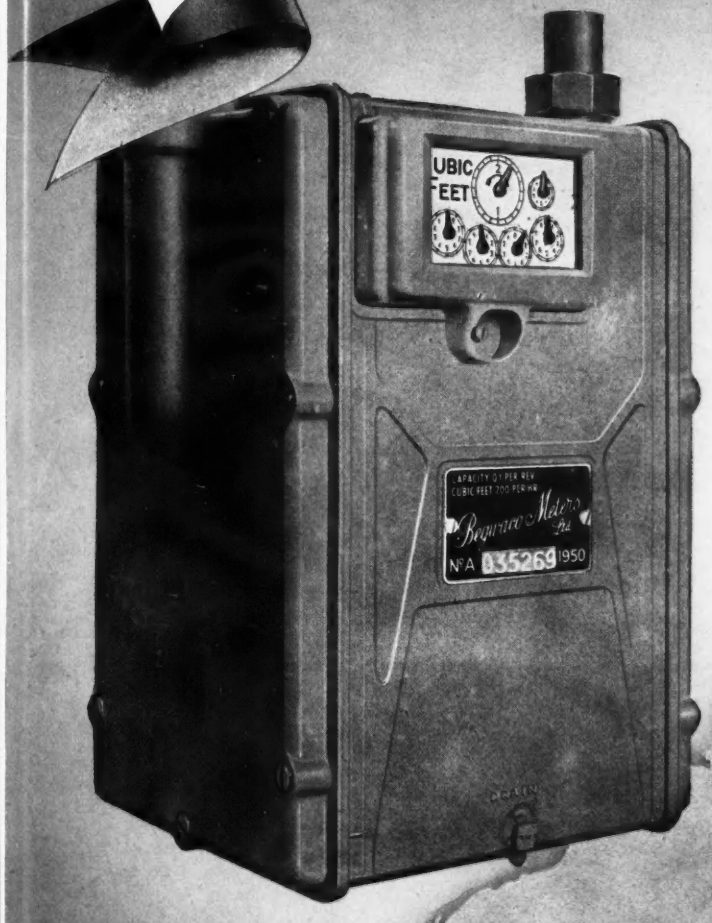

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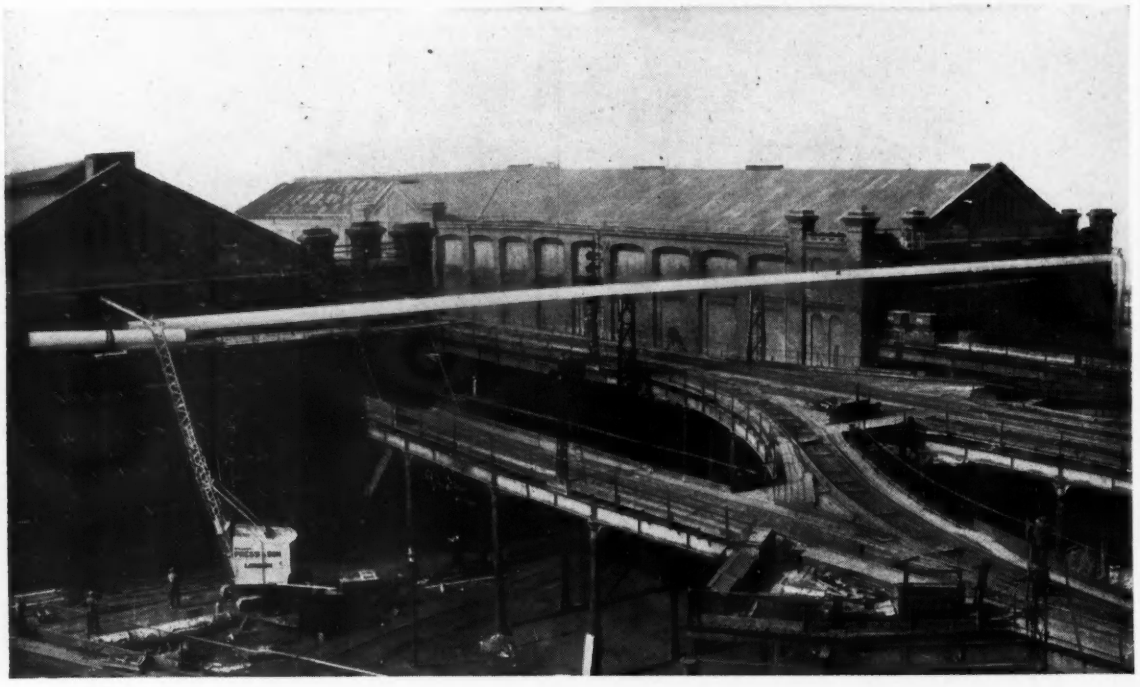

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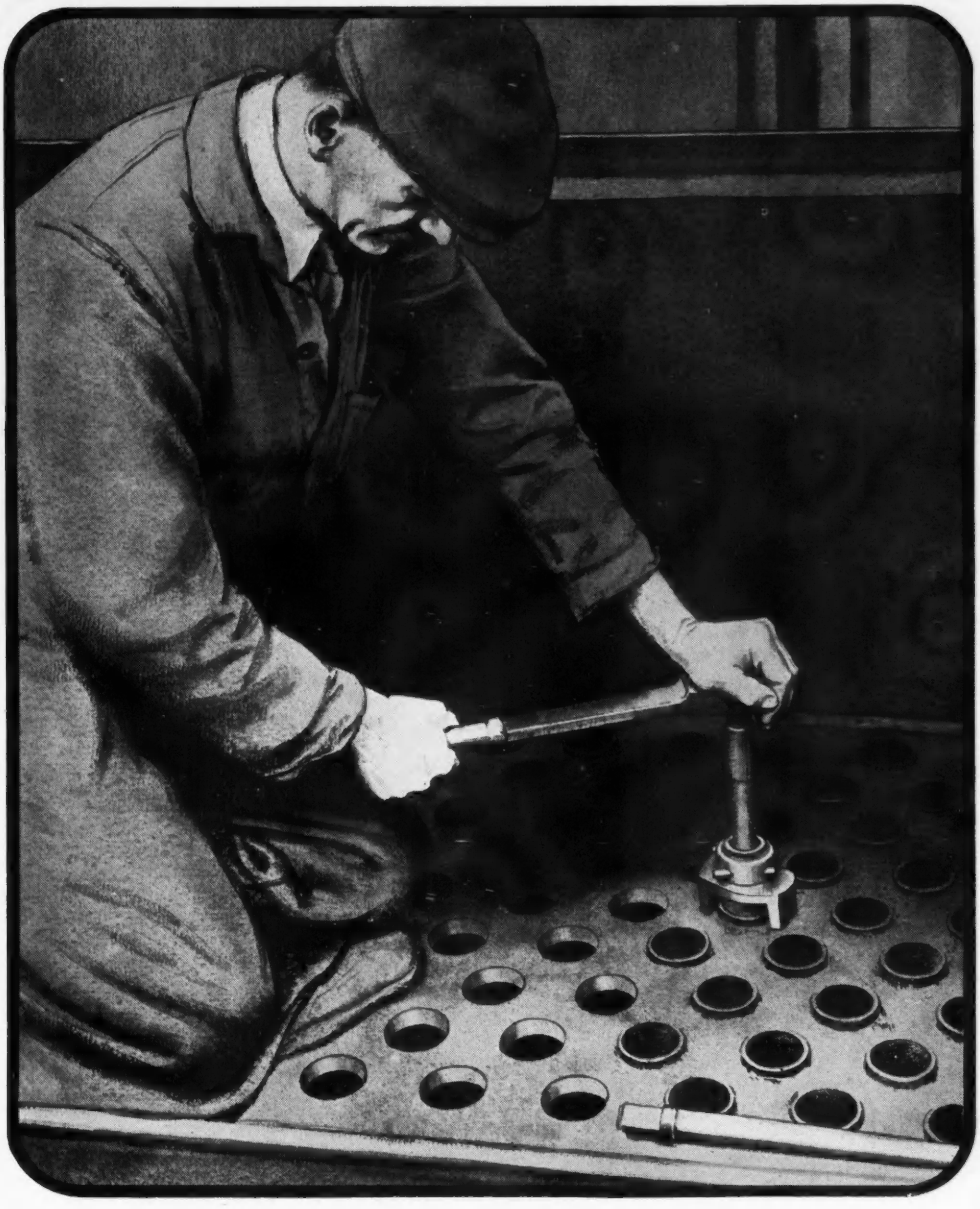

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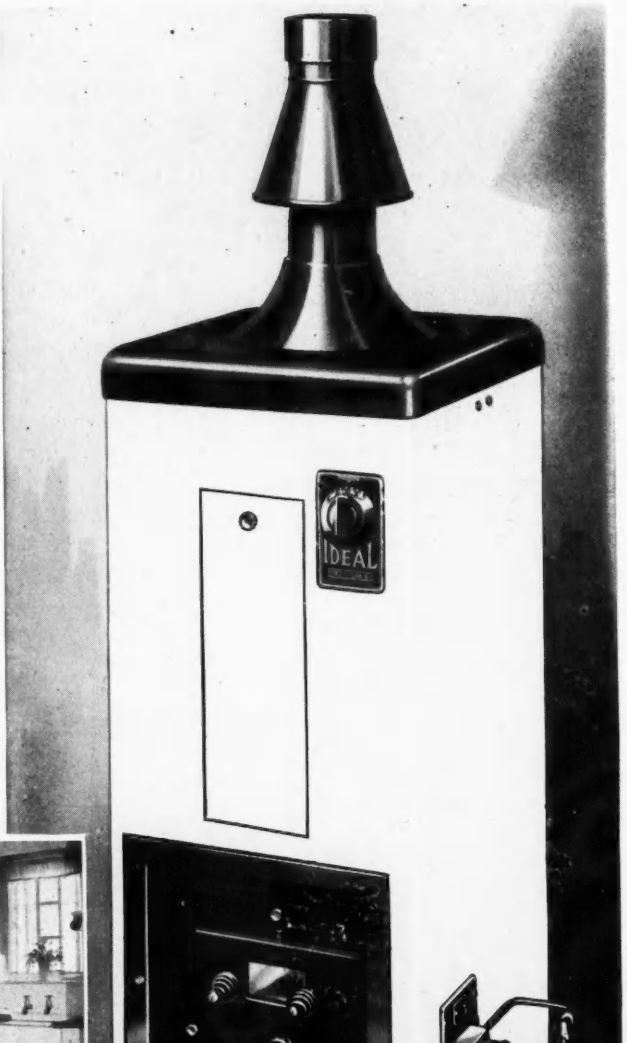

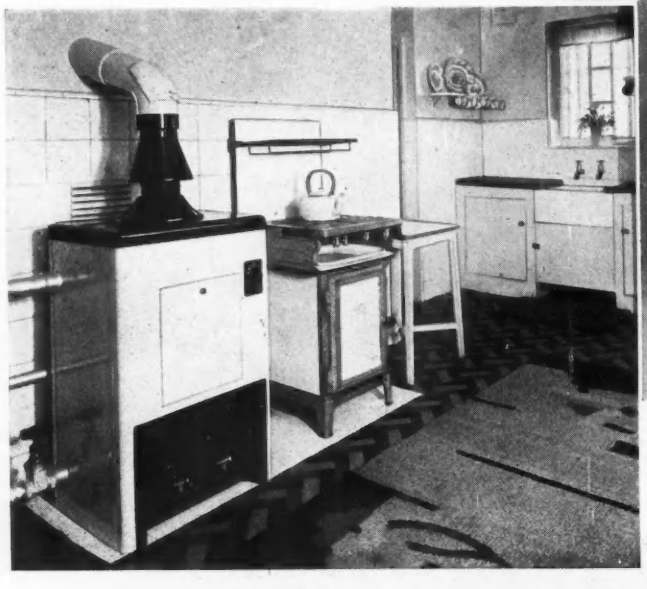

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tion of a Wales Gas Board tie; an area magazine (which found little support); welfare problems; terms as between undertakings and neighbouring groups for bulk supplies, fitters' services, etc.; and the training of future managers, particularly of the smaller undertakings. The final question of the session concerned the possibility of improved standards of pressure and calorific value leading to reduced consumptions. The general feeling was that while there might be an initial drop in the total volume of gas used the long term result would be an all-round increase in gas demand.

Frank discussion on the group committee system followed from a question put by the Chairman. Did the group committee system overwork the efficient and conscientious manager, and overnurse the not-so-efficient and not-so-conscientious? The conference in the result 'redeclared' its belief in the value of the group committee, the mutual aid between undertakings, small helping large no less than the converse, and the improved efficiency of the right type of manager of the smaller works as a result of the wider experience and responsibility now enjoyed as a full member of the group.

Coal Problems

In a paper on coal, Mr. W. Clark Jackson, Coal Officer, said it was hoped that the position respecting availability of coal this year, at least during the summer months, would have shown a marked improvement. Unfortunately, this has not been the case and in actual fact the general supply position has been as difficult as if not more difficult than in the previous year. In August the supply position had to be reviewed by the Ministry of Fuel and Power, and as a result of the grave position an emergency cut was made amounting to 150,000 tons, to operate between August 13 and October 28. The proportionate effect of the cut on supplies to the Wales Gas Board was 3,105 tons.

Problems which had to be overcome during the summer gas coal stocking programme were the general grave shortage of supplies and the further complications brought about by the lower output at Llanharan in South Wales, Llay Main and Bersham in North Wales, and Shirland in the East Midlands. Reluctance on the part of managers to make any serious attempt to build up coal stocks during the early part of the stocking period added to the difficulties. Tonnage of coal allocated to the Wales Gas Board is on a global basis and no coal should be lost to the board on account of the refusal of managers to accept tonnages offered.

More switching of coals has had to be carried out during the summer than in any corresponding period for a number of years. It is appreciated that the variation in quality of coals used for switching could not have been very acceptable to the managers concerned, but without full use of such switching the overall stock position would have been dangerously low.

Complaints still continue to be received about poor quality of coal. In many cases the complaints are justified in spite of assurances given by the National Coal Board that the improvement of coal quality and cleanliness is one of the major features of the Coal Board's policy. Unfortunately, many complaints have no supporting technical information, and often no samples of the coal complained about have been retained for chemical or sizing tests to be carried out. This is an instance where group chairmen can render valuable assistance by arranging that the correct procedure is again made known to their group member undertakings. General complaints with the necessary technical backing are encouraged by the board as they definitely result in more attention being paid at the collieries to the quality of coal sent out.

Tests to determine suitability of coals proposed to be used in connection with further re-allocations will be carried out during the winter in preparation for trying out further re-allocations in the spring. A new 'modern' construction test plant is being installed at Grangetown, Cardiff, and will be used primarily for carrying out tests dealing with evaluation of coals. It is also proposed that increased regular proximate analyses of various selections of the coal now being carbonised in particular areas will be carried out at the laboratories of the Cardiff, Swansea, Pontypool, Llanelly, and Neath undertakings in the south, and Colwyn Bay, Rhyl, and Wrexham in the north.

It was stated in the discussion that holidays at the collieries had a serious effect on coal deliveries, and it was essential to look ahead. In one fortnight a North Wales undertaking had been compelled to reduce its coal stocks to a fortnight's supply, and it looked as if it would be months before stocks could be built up to a really safe level.

Swansea Minor Conference

Mr. Ernest Ablett, Chairman of the Swansea Group Committee, described in a short paper a 'Group Minor Conference' at Swansea on the new accounting system. The conference was attended by about 25 staff members whose duties were associated with the new accountancy system, which was described by Mr. A. E. de Gay, the Group Accountant. The programme was fairly well maintained, although, owing to the interpolation of questions, and of requests for amplification, the 'expositions' period overran slightly to the afternoon session, where discussion, after a not unexpectedly slow start, developed quickly, animatedly, and usefully. The author's view now is that such a conference should be planned to permit discussions after the exposition of each particular section of the system, rather than to leave the discussion until the completion of the expositions of all the sections.

The conference had a psychological value. Because they had been invited to the conference and had been officially recognised as being responsible staff members on whom the efficient and smooth working of the new system depended, it is strongly believed that the staff will attack enthusiastically and with a determination to understand, not only the present intricacies of the new accountancy system but any and all of the teething troubles which may arise during the testing period. One reads of allegations that the leaders of large organisations have lost touch with the 'rank and file,' said Mr. Ablett. Whatever truth there may be in such allegations, it is true that the personal element is a factor which those responsible for the conduct of any organisation must be ever careful to consider, and the greater the organisation, the greater the care needed.

Pontypool 'Get Together'

Mr. J. Powdrill, Chairman and Convener of the Pontypool Group Committee and General Manager of the Pontypool undertaking, presented a short paper on 'The Pontypool Get Together'—a weekly assembly at which the assistant engineer, works superintendent, technical assistants, shift superintendents, electricians, etc., have a general discussion with the author. All works operations are covered by a system of reports and technical statistical returns, and in addition the assistant engineer, works superintendent and distribution superintendent compile a weekly report in the form of a personal diary.

Since the new works came into production a complete record of each shift has been kept in diary form so that each oncoming shift superintendent can read what has happened on the previous shift and, with any remarks added by the works superintendent, knows what items require special attention. With such a system it might be felt that meetings are unnecessary, particularly as at set times each day the management meets the person in charge of each section or department to discuss and issue instructions. But as each department, such as accounting, production, distribution, sales, considers it is the most important part of the undertaking the author felt that this sectional pride and enthusiasm should be welded into a whole.

Each person present is encouraged to express his own views on anything and everything appertaining to the works, the management being just another voice in the discussion, trying to promote ideas and to draw out members to speak freely of their troubles and problems. The main advantage is the feeling of having a sure finger on the pulse of the undertaking, with the knowledge that each member is trying to keep the wheels well greased to ensure continued improvement and efficiency in a spirit of team work.

A well organised and active welfare and social club has been developed, the management of which is completely in the hands of the employees, and the operations of the club have been made as democratic as possible. There are already 102 contributing members, and the activities include cricket, table tennis, rug making classes, and social evenings.

Industrial Relations

Mr. W. E. Crowley, Industrial Relations Officer, in a paper presented in his absence owing to illness, reviewed the work of his department, the results of staff grading appeals, and the national award of an increase of 1½d. an hour as from June 11 for maintenance craftsmen and bricklayers and masons. He also reported on the present position regarding works committees, and pointed out that the board has certain obligations with respect to the establishment and maintenance of machinery for the promotion and encouragement of measures affecting the safety, health, and welfare of its employees, and the discussion of other matters including efficiency in the operation of the services of the board.

Progress in Road Tar Research

Annual Report of the B.R.T.A.

THE report presented at the annual general meeting of the British Road Tar Association on October 24 stated that the main lines of investigation for 1950/51 to be undertaken by the Road Research Laboratory of the D.S.I.R. under its arrangement with the B.R.T.A. are as follows:—

(1) A continuation of the study of the action of oxygen on tar, and also of the combined action of oxygen and light on tar.

(2) Further development of durability tests for tar to measure susceptibility to (a) oxidation and (b) evaporation.

(3) Trials on a pilot-plant scale in a works of two processes for making carpet tar of high durability, with full-scale road experiments using these tars for comparison with normal tars.

(4) Development of processes for the mixing and laying of tar surfacing materials with cold and undried aggregate.

(5) Further laboratory work on the adhesion problem with particular reference to the use of new wetting agents for surface dressing operations in wet weather.

(6) Continuation of the work on tar carpets; a review of all the existing road experiments laid to investigate the effect of traffic, climate, aggregate and tar on the composition and performance of tar carpets.

(7) Development of cold-laid fine textured tarmacadam.

Attention is being concentrated this year mainly on a review of existing experiments, with the object of preparing reports, giving the conclusions which can be drawn. A publication entitled *Review of Road Research*, a brief review of all the work done by the Road Research Laboratory in connection with tar since co-operative research with the B.R.T.A. was commenced 18 years ago, has been prepared, and will shortly be published as *Road Research Bulletin No.* 3.

New road experiments in 1950 are limited to items which are considered to be of such importance as to further the general advancement of researches. They cover tar carpets using specially prepared tars, tar carpets using local aggregate and local tars, the use of wetting agents to facilitate the coating of undried aggregate in the manufacture of tarmacadam, and surface dressing in wet weather.

The pressure oxidation test does not give sufficiently concordant results for general application. Experiments are, however, being continued in members' laboratories, and it is considered that the test will prove a useful research aid to road tar suppliers to enable them to determine which of their own road tars are most suitable for the purpose for which they are intended. The Road Research Laboratory is now investigating another test to take the place of the Fraass test.

Road experiments have demonstrated that no appreciable benefit is gained by adding wetting agent to tar, and full-scale road experiments have taken place in which two other methods—the spraying of the wetting agent on to the tar on the road before applying the chippings, and the treatment of the chippings with the wetting agent before spreading them—were tested. These experiments have shown promising results.

'Brotox' is a specially manufactured road tar guaranteed to be non-toxic to fish life. It is covered by a registered trade mark owned by the Association, and licences to manufacture it are held by certain road tar suppliers. The specification, drawn up in 1934, provided that the viscosity of the tar should not exceed 140 seconds at 30° C. Since this is not in accordance with present day practice, under which road tars of a much higher viscosity are commonly in use, the consent of the Ministry of Agriculture and Fisheries and of the Board of Trade has been obtained to the removal of this upper limit of viscosity.

Premixed Wearing Surfaces

A special committee was set up during the year to investigate the present position regarding the availability of mixing plants for tarmacadam, and the scope that exists for the manufacture of wearing course materials of the carpet type and to submit proposals for furthering their use. The committee has reported that tarmacadam plants exist in large areas capable of producing both base and wearing courses according to B.S. Specifications 802 and 1241, while others could do so if fitted with the necessary control instruments and operated with the necessary supervision.

Members have been recommended to take the necessary steps to demonstrate that satisfactory tar carpets can be produced in their area.

The Association has prepared a booklet containing typical specifications for dense tar surfacing based on the knowledge and experience gained in laying it under various traffic conditions. Dense tar surfacing is a hot process tarmacadam, the good mechanical and weather resisting properties of which make it suitable for both heavily and lightly trafficked roads.

The Certification Trade Mark scheme completed its fourth year of operation with the close of the 1949 season. The total number of licences now operative is 39, covering 75 works in all parts of Great Britain. The amount of certified tar sold in 1949 was 318,884 tons, representing about two-thirds of all the road tar sold in the home market. The high standard of plant and laboratory control and of records was maintained. The scheme, offering a guarantee of quality, has been of great benefit to supplier and user alike.

The three travelling representatives have reported a continuing awareness of the keen competition arising from the use of bitumen, which is expected to increase as a result of the greater tonnages to be produced in the new oil refineries which will shortly be coming into operation. The reports also emphasise the excellent surface dressing results being obtained throughout the country; these appear to be due in some measure at least to the technical literature on the subject which has been issued by the B.R.T.A. and which has had a very wide circulation.

Since the end of the Association year the number of travelling representatives has been increased to four.

Membership at June 30 comprised 974 producers (939 gas undertakings and 35 coke ovens) and 29 distillers, representing approximately 78% of the total crude tar produced and 81% of the road tar sold in the home market.

A 15-in. Gas Main laid a distance of 13 miles from Bishop Auckland to Darlington by the Northern Gas Board has been brought into use. The main was officially commissioned by Mrs. Sadler, wife of Mr. N. Sadler, Chairman and Managing Director of Sadler & Co.'s coke oven and by-products plant at Bishop Auckland, who are supplying the coke oven gas. The gas is being used in the Darlington area for industrial purposes.

A reproduction of one of the Gas Council Publicity Department's latest range of double crown posters. These 1950 posters are issued to the area boards under a subscription service scheme. Stocks are available at Gas Industry House for use in connection with exhibitions and other displays.

Policy in the North Western Area

THE North Western Gas Board held a two-day conference at Southport on October 13 and 14, at which some 350 junior and senior staff employees heard the Chairman and board members explain the board's policy and achievements and were also given an opportunity of voicing their own views upon matters of personal interest. The visitors were drawn from 103 gas undertakings in the North Western area. They were welcomed by the Mayor of Southport, Councillor R. Fleetwood-Hesketh, T.D., J.P., D.L., and the Corporation of Southport, on the evening before the opening of the conference, and were entertained at supper. The objective of the conference was to endeavour to re-introduce the personal relationships which existed between gasworks employees and boards of directors and local authority gas committees, which has been one of the major problems set up by nationalisation. It was hoped that the conference would be a step forward in bringing employees and the board closer together. Other steps to be taken would include frequent visits to different gasworks at which the board members would meet representative workers and have informal talks with them.

Opening the business of the conference on October 13, Colonel **W. Moncrieff Carr**, C.B.E., T.D., Chairman of the board, said that after 18 months of working the board could safely say it had broken the back of the organisational part of its task. That task was indeed formidable, Colonel Carr stated. It was to co-ordinate and develop 103 gas undertakings of radically different kinds and sizes, some operated by companies, others by local authorities. Each undertaking had its own gasworks and distribution plant, its own sales system, its own system of charges both for gas and coke. Appliances of every conceivable design were marketed and prices for the same appliance varied from town to town. It was their task to bring order out of this medley, try to achieve uniformity of practice, and to establish a high standard of consumer service throughout the North Western area.

Group Structure

The first step was to reorganise these 103 undertakings into operational and administrative groups of such size as to be most economic in administration, production and distribution. This was not done by drawing lines on a map, but after the most careful scrutiny of existing plant and distribution systems, diversity and location of housing, commerce and industry, geographical features and communications. In addition a general survey was made of potential domestic and industrial demands.

In the new organisation 17 groups had taken the place of the 103 gas undertakings which previously existed. A general manager had been appointed to take charge of each group, directly responsible to the board for the control administration and management of production and supply in his group area. In effect, therefore, the new organisational structure of the industry was a two-tier structure with the group as the operational unit answering directly to the board, and with no barrier between it and the board.

Production engineers were being appointed in charge of each gasworks, and in addition it was proposed to sub-divide all areas under district service managers in order to preserve and extend the individuality of the local gas service. In many areas this will necessitate the provision of additional service centres and showrooms where individual consumer records will be fully maintained in order that direct and immediate personal service can be established.

One result of the new organisation was that the gross thermal yields from coal carbonised are now on an average 2% higher than at vesting date; translated into terms of money saved, this amounted to approximately £300,000 per annum.

Improved results from improved working were reflected in the largest undertakings. The Manchester undertaking showed a deficit in the 13 months ended April 30, 1949, under the Corporation, whereas without any alteration in gas charges and with an increased cost of coal and wages, the surplus for the first 11 months under the board was £216,284.

As an illustration of the advantages of fully equipped mobile repair squads in charge of technical personnel experienced in dealing with emergencies, he would cite the excellent work which was carried out by central repair squads in the rapid restoration of supplies following the unfortunate and serious explosion at Brierfield gasworks on Christmas Day, 1949, and later this year in dealing with the considerable flood damage to gas supply mains at Bolton.

The primary purpose of the centralised repair and construction squads was to carry out maintenance work which could not be done by a normal maintenance staff in the gasworks and districts.

Development Schemes

Headquarters co-ordinated all development schemes within and between groups and it was interesting to observe that in the first 11 months a saving amounting to no less than £670,000 was made by the revision and reconstruction of schemes which had been approved for the various undertakings before vesting date. The new gas-making plant capacity put to work since vesting date was 18 mill. cu.ft. per day, of which 10.2 mill. cu.ft. per day was carburetted water gas. The gas-making plant under construction at March 31, 1950, was 40 mill. cu.ft. per day of which 10 mill. cu.ft. per day was carburetted water gas. Much of this would not be available for a further two or three years.

The total value of new works approved by the board since vesting date was:—

For the construction of gasworks	£1,764,000
For extension of distribution plant	£1,278,000
	£3,042,000

Many further schemes to provide adequate service to meet the increasing domestic and industrial loads were at present under consideration.

Inter-Linkage of Gasworks

Consideration was being given to linking up gasworks, with a view to effecting economies in operation and to permit the closing of small obsolete plants which were not suitable for extension or reconstruction. In this connection, the Manchester Group was now linked with undertakings in Mid-Cheshire by means of a new trunk main linking Altrincham and Northwich via Knutsford, where the gasworks was about to be closed down, and the extension of this inter-linkage to Winsford, Middlewich, Crewe, and Nantwich was planned.

In the Liverpool Group inter-linkage has been effected between Liverpool-Southport, Liverpool-Prescot, and Liverpool-Ormskirk and Skelmersdale, where at this last place the small obsolete works was being closed down.

In the North Cheshire Group, the linking up of the Stockport and new Denton works was in hand, and inter-linking mains to connect up Marple and the works of New Mills and Chapel-Whaley in the Peak Group were planned. In addition, a scheme was in hand for linking up the works at Burnley, Nelson, Colne, and Barnoldswick.

The link-ups effected in the Liverpool Group had enabled the plants at Prescot and Ormskirk to be operated as base load plants with considerable economy, and would enable steadily increasing demands for gas to be satisfactorily met pending completion of new works and extensions projected and in hand.

Billing and accountancy had now been established in 12 centres, eight serving one large group, and four serving two or more of the small groups.

Gas and Coke Price Structures

One of the board's biggest tasks lay in the simplification of gas and coke charges. A tremendous diversity of tariffs, discounts, and charges generally existed throughout the area. At the year end they were proposing to deal with prices throughout the area, simplifying them and establishing common tariffs as far as possible in each group. It was intended to offer an alternative two-part tariff in addition to the flat rate charge in all groups. They had prepared a price scheme to standardise prices for coke in each group area. This was being considered by the Ministry of Fuel and Power, and they hoped that they might be permitted to introduce this scheme at an early date.

Through central buying of equipment, materials, and appliances they had been able to effect very substantial economies.

On the central purchase of two items alone they were saving £175,000 a year —£150,000 on standard gas cookers and £25,000 on meters. They could also say that they had definitely improved their service to the public. In a number of the areas thousands of people were still using obsolete black cookers which gave them a poor and inefficient service. In the Manchester area alone in the past year they had sent something like 12,000 of these cookers to the scrap heap and replaced them with the most modern labour-saving and economic cookers available at the extraordinarily low cost of 1s. a week under a new terminable hire plan designed to make the best appliances available on the easiest possible terms.

Consumers in the areas supplied by the smallest undertakings were now able to purchase the same appliances offered by the largest undertaking at precisely the same price, and this was true also of coke grates, which might be bought and installed anywhere throughout the whole area at the low price of 7d. per week.

Using the training schemes in operation at the Stretford and Liverpool undertakings as models it was proposed to open vocational training centres at a number of strategic points throughout the area. The board was also sending a number of selected technicians to Watson House in London for courses of training as instructors, and these instructors would be available for employment in the centres set up. Similarly under the ægis of the Industrial Relations Department they were setting up committees in each Group to consider how best to take advantage of existing facilities at technical colleges in the area. The board would pay for suitable tuition and for travelling and subsistence in approved cases. It was hoped within the next year to have a comprehensive system of training in being.

Planning Pays Dividends

Outlining the general pattern of the board's technical organisation, Mr. **W. Hodkinson,** Chief Technical and Planning Officer, explained that it was based on a maximum decentralisation of control in the production and distributing departments under the 17 group managerial organisations, with an advisory service from the headquarters technical division. This, in turn, was responsible for the control of capital development within the groups and for the co-ordination of planning as between groups. The broad purpose was, he said, to combine the highest possible efficiency with the best utilisation of vested assets and future capital expenditure.

In the interests of economy, a system of standard returns had been instituted to assess the efficiency of the area's production units. The preparation of market surveys was called for to indicate the scope for development within the groups. The monthly composite returns for the area sent from headquarters to groups offered considerable food for thought and should more than repay the groups for the effort involved. Suggesting to group general managers that station engineers and officials at unit level should constantly receive adequate statistical information as to costs and results, Mr. Hodkinson stated that such information was the tool of operational management and was used most effectively at that level.

Reviewing technical results, he said that the composite return of monthly statistics issued from group headquarters showed that, while there was a reasonable improvement in working results on many production stations, there was still room for further substantial improvement.

To sum up, said Mr. Hodkinson, it was not the board's intention to proceed with physical integration merely because it might be considered fashionable to do so.

At the close of the proceedings Colonel **Carr** introduced the Chairman-elect of the North Western Board, Mr. D. P. Welman, who, he said, was an original member of the board and had devoted a great deal of time and energy to the furtherance of its interests.

Mr. **D. P. Welman** said he thought they would all agree that it was a tragedy there had to be a change of chairmanship. They all had a great admiration for the extremely sound, first-class work which had been done by Colonel Carr during the difficult initial period since vesting day. For his own part, continued Mr. Welman, there would appear to be no reason whatever for making any change in the policy which Colonel Carr had already so clearly laid down.

Manchester Juniors Meet New Chairman

PRESIDENT'S Day for the session 1950-51 took place in the Floral Hall, Southport, on October 14, the retiring President, Mr. R. J. Bradshaw, being in the Chair.

Tribute was paid to the memory of the late Mr. A. L. Holton, who was an Hon. Member of the Association, a Past President, and also had been the first Secretary of the Joint Junior Council.

Colonel **W. Moncrieff Carr,** C.B.E., T.D., Chairman of the North Western Gas Board, in welcoming the members of the Association remarked that it was probably the last occasion upon which he would be able to do so as Chairman of the Board. Most of them knew that he was handing over his Chairmanship to Mr. D. P. Welman on November 1. Perhaps some of those present had felt a little anxiety as to the change which had taken place in the structure of the industry. He believed that the change was going to create great opportunities for advancement in the future. There would be some change of designations. There would be a difference that instead of 103 engineers and managers, as had been the case in the North West in the past, there would be 17 groups. There would be great numbers of important jobs within those groups. This was a point which had been greatly stressed during the course of the two-day Conference of senior and junior officers of the North Western Gas Board when discussing the policy and achievements of that body with its representative members. It was not desired by the board that there should be any lessening of responsibility; they were fully determined to make the best use of all the brains and talents which could be assembled in its service. They were equally determined also to make the new structure attractive. It was fully realised that a structure which did not afford ample opportunity for all, and which did not provide for a proper delegation of authority, could not be successful. The new structure did at least create great opportunities for co-ordination both in methods of production and of distribution. It would be possible to establish better and more efficient service provided there was proper decentralisation.

He would like to emphasize the importance of the distribution aspect of the industry. There had been a tendency in the past for gas engineers to concentrate upon production, but the supply question was just as important if not more so. It was not much good to have a high efficiency of gas production unless that same gas could be delivered to the consumer, giving him a full service during the 24 hours of the day and for 365 days in the year. He desired also to give all present an assurance that, in his opinion, a structure had now been established which would be workable, and which would provide a fair and proper recompense to all who were concerned with it.

Colonel Carr then presented the Colonel W. M. Carr Prize to Mr. L. G. Townsend, M.SC., A.R.I.C., ASSOC.M.INST. GAS E. The paper for which the Prize was awarded was entitled: 'Some Aspects of the Iron Oxide Purification of Fuel Gases.'

The Bronze Medal of the Institution of Gas Engineers had been previously awarded to Mr. Townsend for his paper, and the Council offered their congratulations accordingly.

The F. Johnston Prize was presented to Mr. A. A. Woodcock, of Leyland, for his paper on 'Augmentation of Condenser Capacity.'

Appointment of Officers

The following were elected Officers of the Association for the ensuing session:
President: D. M. Thompson.
Senior Vice-President: L. G. Townsend.
Junior Vice-President: R. J. Bradshaw.
Hon. Treasurer: H. Partington.
Council: A. H. Barrington, N. R. Bowman, J. Hepworth, A. K. Howell, J. K. Lord, T. Nicklin, J. Oates, N. Olsen.
Hon. Secretary: T. W. Pickthall.

Mr. **D. M. Thompson,** having been invested with the Presidential Badge, said his first duty was to present the Past-President's Medallion to Mr. Bradshaw and to express the thanks of them all to him for the efficient manner in which he had guided the Association proceedings during his year of office.

Mr. **Thompson** then gave his presidential address.

Mr. **L. G. Townsend** proposed and Mr. **R. J. Townsend** seconded a vote of thanks to Mr. Thompson.

The members were subsequently entertained at tea by the Liverpool group of undertakings.

Consultative Councils in Session

NORTH THAMES

THE importance of keeping consumers informed of the tariffs available was stressed at a meeting of the North Thames Gas Consultative Council on October 26. One of the district committees mentioned in its report that the gas board under present circumstances need only publish flat rate prices, but it was urged that the board should be asked to take steps to let consumers know how to obtain gas at the cheapest possible rates.

When one member suggested that tariffs should be printed on the quarterly account forms, the Secretary pointed out that only 30% of the consumers in the North Thames area received such accounts; the other 70% were prepayment consumers.

Councillor E. Bayliss, J.P., Chairman, assured the council that the board was doing its best, and promised that the views of the council would be kept in mind.

Attention was called by one of the district committees to a discrepancy between the prices of identical appliances in the adjoining areas of the Southern and North Thames Gas Boards, and it was agreed to raise the question with the board.

The Chairman told the council that the commercial managers of all the areas were to meet to discuss the question of standardising the price of gas appliances as far as practicable, and he thought it unlikely that any definite progress would be made until they had examined all the circumstances. He agreed that the council might well ask the board to try to speed up the action of the national committee of commercial managers.

Information was also sought by a district committee as to the margin between the price paid by the board to the makers of appliances and the price charged to the consumer. The council passed the query on to the board. The board's policy of standard charges for various services such as fixing and disconnecting appliances, inspection and maintenance of consumers' own appliances, repair and replacement of major parts, etc., was considered and it was agreed that this method of charge was preferable to quoting for each job on a 'time and material' basis.

The question of privacy for consumers seeking to discuss hire purchase and other financial matters in the board's showrooms, raised at previous meetings, was brought up again, dissatisfaction still being expressed with the facilities available at the Kilburn showroom. The board had made it clear that every effort would be made by rearrangement of desks and other measures to afford the necessary privacy, and that where this was still not practicable arrangements could be made for a representative to call on the consumer at his home.

In answer to Lady Nunburnholme, the Secretary said it had been explained that a representative could call at any reasonable time to suit the consumer's convenience, even if it was outside normal office hours.

It was reported that several letters had been received with regard to loss and inconvenience alleged to have been suffered by consumers as a result of the recent strike of maintenance men. Some consumers had asked for rebates to compensate them for the fact that for some days they had been deprived of the use of gas appliances for which they had been paying a rental.

These communications had already been brought to the notice of the board who, while regretting the inconvenience suffered by so many consumers, were unable to entertain any claims since the reduction of pressures had arisen from causes not within their control.

Copies of a new form of application for supply of gas were handed round for the information of members of the council. Two features of the form were a space in which the applicant was asked to state the particular tariff under which he wished to pay for his gas, and a note under the space for the applicant's signature which read: 'If a female please state whether spinster, widow, feme-sole, or wife of . . .' Objection was taken to the inclusion of the word 'feme-sole' and it was agreed to ask the board to remove it. (The dictionary meaning of 'feme-sole' is 'a woman of independent means in her own right' or 'a woman legally independent.')

The council is to change its place of meeting; the next meeting, on November 30, will be held at the Westminster City Hall, Charing Cross Road.

SOUTH EASTERN

THE quarterly meeting of the South Eastern Gas Consultative Council held on October 3, marked the first anniversary of that body, and the Chairman, Ald. A. C. Warwick, took the opportunity of reviewing the year's working.

Among various points brought up by district committees prior to the Chairman's review was a recommendation from East Surrey for the allocation of more steel for the manufacture of gas refrigerators. Regret was expressed by Kent Suburban that the recent increase in the price of gas was merely prolonging existing anomalies, and a request was made for the costs of the four London divisions to be made available for purposes of comparison. Attention was drawn to the varying allowances made to consumers in different areas for old appliances, and the view was expressed that these should be uniform. In some instances there was a set allowance; elsewhere consumers were given a 'scrap' value. Kent County reported an opinion from Ramsgate that had it not been for nationalisation the gas undertaking there would have been in a sufficiently favourable financial position to reduce the price of gas, whereas they had suffered the increase in price along with the rest. Concern was also voiced from this district at the recent Court decision that the householder must be held responsible if his gas meter was broken into.

Complaint was made by several districts, particularly Metropolitan, about the poor attendances at committee meetings, it sometimes being impossible even to get a quorum. Various suggestions were put forward to overcome this difficulty, including a reduction in the number necessary to form a quorum; to increase the membership of committees; and to report consistently bad attenders to the Ministry so that they might be replaced. Some sections of the Press had implied that the consultative councils were merely 'rubber stamps' for the gas boards. The functions of the consultative councils, it was observed, were not sufficiently known to the general body of gas consumers, and it was felt that greater publicity might be given to their work by means of leaflets and imprints on the back of accounts. In addition, members of boards' publicity staffs might publicise their activities by addresses to local organisations. After some discussion, it was finally agreed that the Secretary write to all members who were continually absent from meetings without explanation.

The Chairman dealt with the matters raised by the districts. He said that the question of the allocation of steel was not within their jurisdiction, but he did understand that some of the electrical refrigerator manufacturers were transferring a certain amount of steel for gas refrigerators and that additional firms might be coming into the gas refrigerator market. As regards the suggestion to make available the figures of the London Divisions he pointed out that manufacturing costs differed so widely that even if they were made available they would be of little value for comparative purposes.

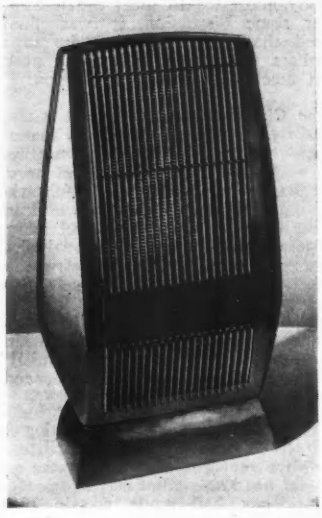
The Chairman, in briefly reviewing the past year's work of the Council, said that when they first met 12 months ago they did not know what was in store for them. They had made certain plans and had decided how they could most effectively carry out their duties. He was glad to be able to say that so far they had not had occasion to alter those original plans. The district committees had functioned in the way they had hoped and expected. The board had not varied to any great extent the general practice of the gas undertakings represented. They were always learning from experience and were not satisfied that everything had yet been done. They did not want a lot of centralisation which stultified initiative. On the other hand, when they were spending £26 mill. per annum they must closely watch how that money was being used, and questions of main policy must be settled by the board itself. Efficiency of supply had certainly not deteriorated; indeed, in many places it had been considerably improved.

The existence of the council did keep the individual undertakings 'on their toes,' because they knew that if there were complaints—and there had not been many—they would be traced right back to their origin. Every complaint that had been brought to their notice had been satisfactorily settled so far as they could be settled. It only remained to consider what further steps could be taken to let consumers know that the consultative councils existed to help them.

The Merlin Gas Heater

We illustrate the New World No. 678 'Merlin' gas convector space heater introduced by Radiation Ltd. In the styling of this new heater an industrial design group, Richard Lonsdale-Hands Associates, was called into consultation, and the result of this co-operation is an appliance not only of high technical performance but also of elegance.

The 'Merlin' is a flueless heater with an overall efficiency of 90%, and at the standard rating of 8,000 B.Th.U./hr. will keep a room of about 3,000 cu.ft. comfortably warm. An element of heat-resisting steel is heated by luminous flames. The element is held in tension so that it cannot sag and it has been proved by experiments over a number of years to be practically indestructible.



Polished aluminium reflectors show a pleasant glow and project radiant heat forwards. In the space between the reflectors and the outer casing a stream of air flows, emerging upwards and forwards from the top grille. As in previous Radiation heaters, the casing remains cool, ensuring that adjacent walls and furnishings will not be disfigured by overheating or by dust deposition from incidental air currents. Lighting is by means of a rapid flash ignition device.

The heater is designed to ensure a high degree of stability, but concealed floor fixing brackets are provided if positive location on the floor is required.

A wide range of calorific values is catered for by simple positive adjustment, and the built-in pressure governor automatically maintains the gas rate. Apart from periodical cleaning of the reflectors and front grilles by the user, practically no attention is required after installation; but because of the simple construction, access to the interior, if required for any reason, is easy. The grilles are secured by screws which are concealed, but readily accessible behind a hinged panel in the upper grille. The complete burner assembly and the reflector systems can be removed without difficulty; in fact, the whole appliance can be speedily dismantled without the use of special tools. The complete heater weighs only 23 lb.

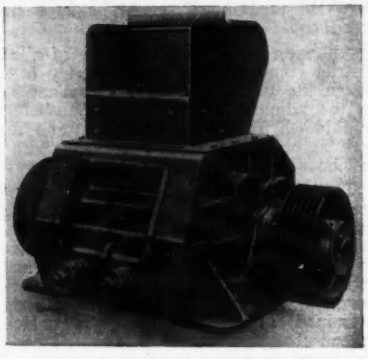
The cast-iron base and the pressed steel outer casing are finished in either gold or pewter, the front grilles being of aluminium anodised a deep gold colour.

Murex Developments

The Board of **Murex, Ltd.**, of Rainham, Essex, announce that, in conjunction with Australian Associates, they have participated in the formation of a new company known as Murex (Australasia), Pty., Ltd. This Company has been formed primarily for the manufacture and sale of Murex arc welding electrodes and equipment, and will employ the most modern electrode manufacturing plant and techniques as developed and used by Murex Welding Processes, Ltd., at Waltham Cross, after many years' experience of the welding industry. The full resources of the extensive Murex research organisation in England will be available to assist the future development of the Company. The head office of the new company, with a modern factory and research department, is to be situated at Derwent Park, Hobart, Tasmania. Branch offices are to be established in all Australian State capitals, and will later be extended to New Zealand. The board of directors of Murex (Australasia), Pty., Ltd., consists of Messrs. Francis H. Foster, C. P. Flockart, and D. E. Hopkins. The General Manager of the Company is Mr. Wilfred T. Bennett. Mr. E. J. Clarke, Director and Development Engineer of Murex Welding Processes, Ltd., has already arrived in Tasmania to advise on the installation and operation of the new manufacturing plant.

The Flextooth Crusher

The B.J.-D. Flextooth crusher (illustrated here) is a machine specially suitable for the reduction of clean or interstratified coal in one operation, and, if need be, from run-of-mine sizes. The Flextooth crusher is built in a range of sizes of which the largest will give up to 250 tons/hr. throughput from a feed size up to 24 in. cubes when making a product of 80-90% below 1¼ in. mesh.

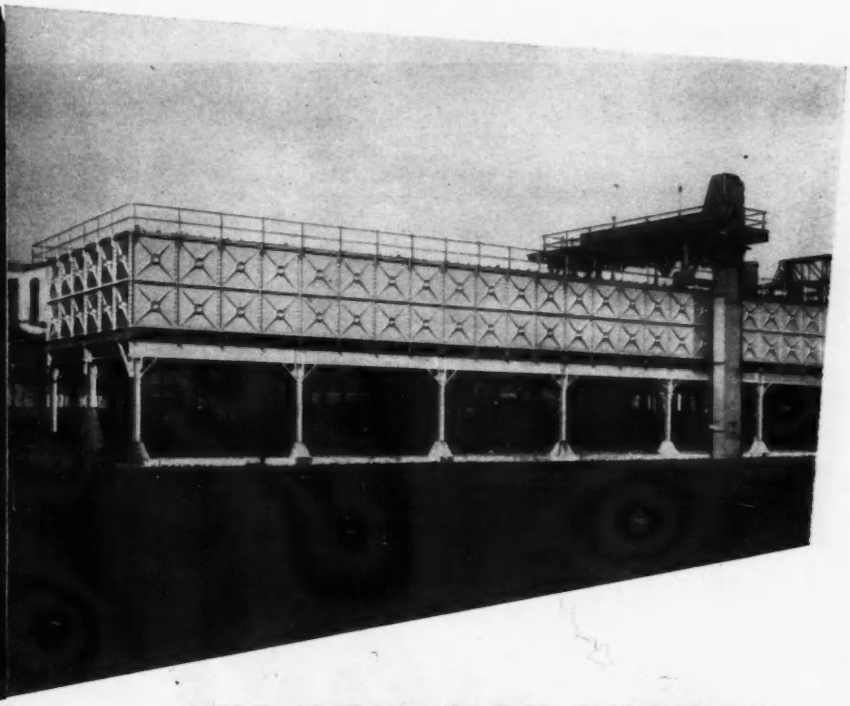


The smaller sizes are naturally more limited in capacity and size of feed, but the same efficiency in operation is to be found throughout the range—*e.g.*, a product comprising 80-90% through 1¼ in. mesh (in some instances through ¼ in. mesh) is obtainable in one operation from any machine.

The Flextooth crusher was originated by British Jeffrey-Diamond, Ltd., and is built at their Stennard works, Wakefield.

The annual staff dinner of Smith Meters, Ltd., was held at the Caxton Hall, Westminster, on November 3. Our photograph shows the happy gathering under the Chairmanship of Mr. Norman L. Smith.

"Exeter, the gateway to the west is one of our most ancient cities, in which the best of old England combines with the best of modern England."



PURIFIERS AT EXETER

The ancient Guildhall shown above, first erected in 1330, makes a striking contrast with the Dempster purifiers shown on the right.

This modern Installation Comprises 6 cast iron Boxes 30ft. × 20ft. × 10ft. deep, capacity 3½ million cu. ft. per day, complete with combined oxide handling plant and cover lifting apparatus.

An interesting feature is the employment of Seal Valves for the gas flow, using gas oil.

Enquiries are also invited for mild steel welded boxes and Tower Purifiers.

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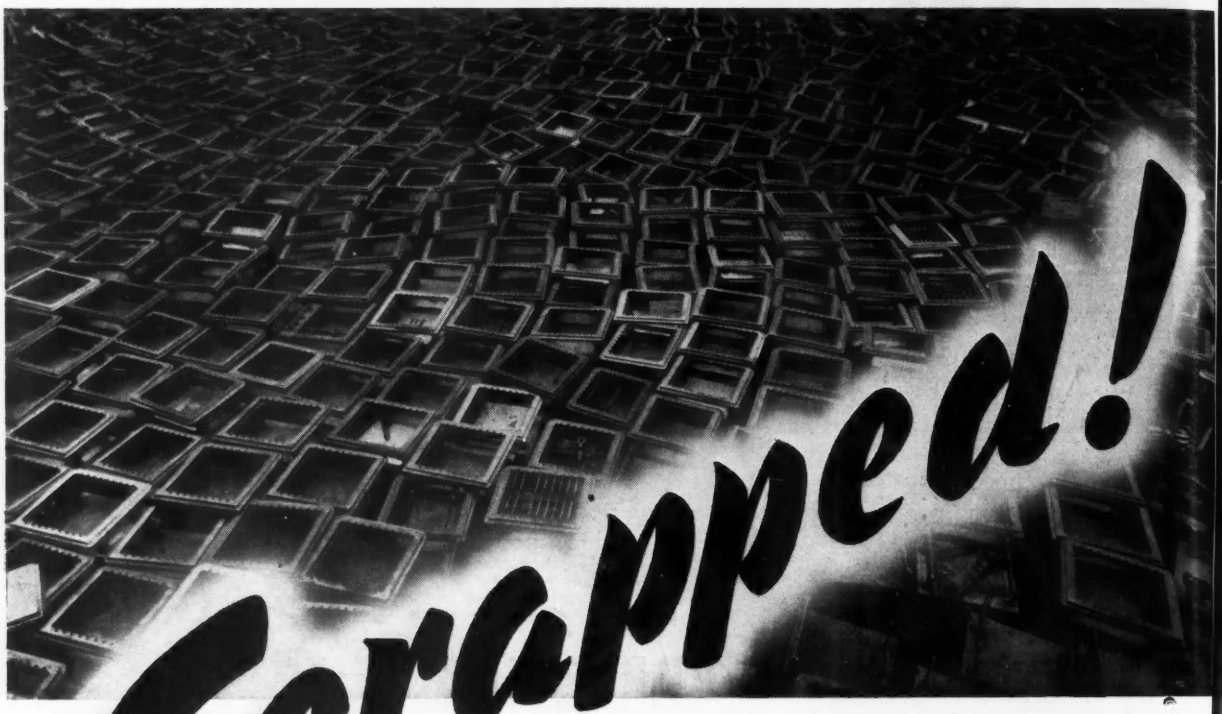


Scrapped!

Photograph, reproduced by courtesy of the North Western Gas Board, shows a section of a batch of 7,000 black cookers now lying at the Gleden Street Depot of the Manchester gas undertaking awaiting disposal as scrap.

AND NOW...

...it's a

NEW WORLD

PRODUCT OF Radiation Ltd

for me!

Radiation Group Sales Ltd., Radiation House, Aston, Birmingham 6

NEW WORLD NEW WORLD NEW WORLD

During the past twelve months more than twelve thousand obsolete black gas cookers in the Manchester area have been replaced by cookers of modern design. Now, thousands of housewives in the district, proud and happy in the possession of a NEW WORLD 4180 Gas Cooker are saying "It's a NEW WORLD for me!" Because of the high performance, low maintenance and low initial cost, this latest NEW WORLD cooker has been widely adopted by many Area Boards for long-term Hire Purchase Schemes.

The NEW WORLD S.4180 Cookers are simple in construction and specially designed for long, hard use. The large Regulo-controlled oven has rounded interior surfaces for ease of cleaning. There is a large, highly-efficient grill. The finish is Radar grey vitreous enamel with the door panel in white.

Showrooms & London Offices: 7 & 8 Stratford Place, W.1

NEW WORLD NEW WORLD NEW WORLD

CRAFTSMEN OF THE FUTURE

Meet Kenneth Saunders—

Saunders has been with us nearly two years and is an apprentice draughtsman. Already he has passed through our Foundry Training Centre and the Engineering Training Centre and is now in the Fitting Shops. He is working for his National Certificate in Mechanical Engineering.

The Newton Chambers Training Scheme is a successful and practical interpretation of the national need for the training, encouragement and development of the craftsman of tomorrow with a real interest in the job.

Thus, we in Thorncliffe are not entirely concerned with the production of so many tons of this or gallons of that. We strive to ensure a continuity of the spirit of enterprise and craftsmanship in each phase of this Company's ever growing activities in engineering, chemical technology and in the field of national competition for the world's business.

NEWTON CHAMBERS

& CO., LTD., THORNCLIFFE, NR. SHEFFIELD

Gasholders . Purifiers . Condensing & Washing Plant . Tar Distillation Plants . Ammonia Liquor Concentration Plants . Sulphur Burners and General Heavy Engineering Products in Cast Iron and Mild Steel.

Gas in France

From Our Own Correspondent

The papers presented to the Annual Gas Congress held in Paris in June last are admirably summarised in the Editorial of the 'Journal des Usines à Gaz,' July.

FOLLOWING the policy, laid down two years ago, of a close connection between the gas industry and those of coal and steel, several of the most eminent specialists in the two latter industries made use of the platform offered by the Association Technique du Gaz to make known results of tests undertaken on a vast scale in their industries, particularly on the adaptation of Lorrain coals to the production of cokes suitable for blast furnace operation. These adaptations take the form of blending the several petrographical varieties of coal and in some cases the use of coke or semi-coke breeze. It is noted that of the 900 mill. cu.m. of rich gas produced, 85 mill. have been sold to distributors (of town gas). Total gasification and the production of water gas were well to the fore, showing the interest of the gas industry in the use of weakly caking coals and in the control of the coke market.

The 29 communications presented covered nearly every aspect of gas engineering. Among these we may note that Messrs. G. & P. Meker described a new 'combustion meter' (comburimetre), itself a modernisation and simplification of an earlier instrument, for use in furnace control. M. Schussl stressed the advantage of a retort for preliminary distillation superimposed on the producer for total gasification. Several papers dealt with the control of leakage, corrosion, etc., of buried gas mains, others with domestic appliances. M. Alis described a test with the use of infra-red radiation from gas-heated tubes for activating the vegetation of plants in horticulture and market gardening; the difficulty, now surmounted, was to get gas to burn in a sufficiently long flame in the tube. M. Rivière discussed one of the problems, that of the measurement of transmission by radiation in industrial furnaces, which is being dealt with at the international research enterprise now running at Ijmuiden. M. C. G. Thibaut discussed the several methods of measuring the mechanical properties of coke and M. E. Burstlein that of the upgrading of coke breeze (0 to 10 mm) with emphasis on the desirability of returning the finest grades to the coal charge.

Among the visits was one to the gasworks of Nanterre which is equipped with 14 settings of eight Glover-West continuous verticals and six settings of six Picard vertical chambers all heated by six Marischka producers each of 20 tons per day capacity with automatic charging and clinkering.

Test Burners

In the August issue of the *Journal des Usines à Gaz*, M. A. Roux, Engineer to the research department of Gaz de France, follows up the recent description of the Delbourg test burner by a classification and brief description of the different test burners which have from time to time been suggested for the quality control of town gas. He notes seven categories classified according to the phenomenon observed and the variable measured. In the Lamphier Caloroptic of Canada and the U.S.A. the appearance of the yellow point is observed and the air supply is the variable measured. In the Ott, Burna (of Ch. Gray, *Het Gas*), and Hawes burners, the point of flash back is noted and the air supply measured. The Hofsäss (German) and Grebel-Velter (French) burners function under constant pressure and with constant air supply and the height of the blue cone is measured, being the greater as the gas is richer. In category 4 the height of the blue cone is maintained constant with regulation of air supply the opening of which characterises the gas tested; it includes the English A.T.B. burners, the Czako and Schaak, the Rochester test burner (U.S.A.) and the A.G.A. Precision test burner, also American. Category 5, of which the American 'Flamdicator' is an example, is based on the measurement of the temperature of the flame. Category 6 is the 'Calyx' flame burner described by F. Brinsley, of Radiation, Ltd. (Inst. Gas E., Comm. 353, 1949), which gives total air requirement within ± 1.5%, and Category 7 is the A.G.A. Luminous test burner in which a luminous flame burns with constant length within a tube, the pressure required to maintain this length being the variable measured. But none of these burners solves the general problem of the substitution of one mixture of gases for another for which, it is claimed, the Delbourg burner does provide a solution.

Calorimetry

M. E. Courant, Engineer at the little town of Arcachon in the Bordeaux region, describes some simple forms of the gas calorimeter. The correct determination of the calorific value of gas can only be effected with the help of the Junker Calorimeter. The synonymity of 'Junker' with 'standard' is significant; we might say, 'with some form of standard calorimeter such as the Boys.' M. Courant wanted something simpler for day-to-day observations. He began with a flame burning at constant rate and pressure in a tube below a mercury cup containing a thermometer. The c.v. was equal to K (t_1-t_2), t_1 being the temperature indicated by the thermometer in the mercury cup, t_2 that of the room, and K, a constant deduced from comparison with the standard instrument.

He went on to replace the mercury cup and its thermometer by the two sides of a thermocouple connected to a recording galvanometer. This apparatus was preceded by a calcium chloride drier and a pressure governor. It has functioned correctly since 1936, with periodical cleaning not more frequent than every six months. M. Courant also describes the usual height of flame indicator which he has improved by enclosing the flame in a glass tube, graduated on two sides diametrically opposite so that the height can be accurately read. The principle of this simple indicator is, of course, that variations in the height of the flame are proportional to those of the calorific value of the gas burned—*i.e.*, c.v. = a + b H. The constants a and b are determined by comparison with the Junkers. In his case, burning gas at 40 litres per hour at a pressure of 25 mm., a = 1,500 and b = 50 when H is measured in mm. He remarks that this simple instrument could be easily put up in a portable form, occupying a light box 4 × 2.5 × 3 cm., when it would be very useful at the point of use of gas. With its general uses we are all familiar, except perhaps one, that of calling attention to accidental errors in the use of the Junkers!

Gas from Grapes

J. Barlot, in the Bulletin de la Société Chimique de France (abstract by A. Roux) describes a test pyrogenic distillation of grape skins, presumably a residual product of the wine industry. Heated electrically in a horizontal tube gas is given off at two maxima, about 380° C and about 650° C. Unit weight of dried skins breaks down into 11.1% oil, 16.9% water, 44.7% carbon and 28.3% gas, by weight (there appears to be a slight arithmetical error here). The gas obtained has an average composition of CO_2 40.5%, CO 15.6%, H_2 2.4%, hydrocarbons 40.1% with a calorific value of about 4,150 cal. (435 B.Th.U./cu.ft.). It is suggested that the CO_2 could be reduced to CO by heated carbon, in which case 1 kg of this grape residual would yield 252 litres of gas at 4,800 cal. with a consumption of 45 g. of carbon—say, 7,500 cu.ft./ton at 500 B.Th.U.

HEAT INSULATION

The Institution of Gas Engineers and the Joint Committee on Materials and their Testing have organised a joint discussion on heat insulation which will be held at the Institution of Mechanical Engineers, Storey's Gate, S.W.1, on November 30. The following papers will be presented in abstract and discussed: 'Heat Insulation for the Refrigeration Industry,' by S. Richards, M.INST.REFRIG.; 'The Economics of Thermal Insulation in Building Construction,' by C. W. Glover, M.I.C.E., M.I.STRUCT.E.; 'High Temperature Insulating Materials, their Properties and Testing,' by J. F. Clements, B.SC., A.R.I.C.; and 'Medium Temperature Insulation,' by E. G. Cawte, B.SC., A.INST.P. Tickets of admission can be obtained from the Institution of Gas Engineers, 17, Grosvenor Crescent, S.W.1.

PRESS AND PUBLIC RELATIONS

By A. H. SILCOX,
Editor, Gas World

This paper and that summarised on the facing page were presented at the fourth conference of chairmen and conveners of group committees with headquarters officials and secretaries of functional committees of the Wales Gas Board at Aberystwyth on October 13, under the Chairmanship of Mr. T. Mervyn Jones. Their presentation led to a discussion of nearly two hours' duration

IT is easy to be witty about Press officers and public relations officers because it is characteristic of the British to take a light hearted view even of the grimmest situation, and sometimes to a Technical Journal editor, in his serious moments, the situation regarding the modern practice of employing such officers does appear somewhat grim. My experiences have by no means all been bad ones, but in the main I find it better to side-track P.R.O.'s and make my own contacts personally with the principals. There are too many people who appear to think that the mere upgrading of an advertising clerk to the omnipotent role of P.R.O. is a password to the editorial columns of a paper and a guarantee for the continued plugging of specific interests and products. This custom has undoubtedly been growing utterly regardless of that simple, fundamental editorial principle—news value.

A newspaper—or a technical journal—should be regarded as the medium for the dissemination of true fact and knowledge, whatever the specific sphere of its guardianship. Unfortunately, the advent of nationalisation seems to to have restricted somewhat the freedom of the individual gas manager or engineer to deal directly with the Press. Someone higher up in the hierarchy of management must invariably be asked for authority to disclose or verify. That, I suggest, is quite wrong and the industry is bound to suffer.

An Attitude of Mind

The Chairman of the Wales Gas Board regards public relations as an attitude of mind, and *not* a *separate functional office*, but it is none the less true that the intense quickening of industrial activity in the country and the increasing tempo of modern existence generally has caused more and more national organisations and industrial undertakings to accept the idea that it is advantageous to appoint public relations officers or Press officers to maintain contact with the Press.

In Wales the decision has been taken, I understand, not to appoint P.R.O.'s or Press officers now or at any time. Assuming, however, that that fact in no way implies lack of recognition of the value of Press publicity, then it is necessary that every local manager, particularly chairmen and convenors of group committees, should keep themselves 'Press and publicity conscious.'

It is a truism that an industry ceases to grow as soon as the public knowledge of it ceases to grow. It is quite impossible to keep the gas industry going by hiding its bright light under a bushel, or by assuming that gas is so good in itself that it can retain consumers against competitors, and even be able to get new ones.

Gas at the moment enjoys a generous share of public confidence, but the retention and improvement of that happy state of affairs is dependent on keeping up a steady flow of the right kind of publicity. The gas industry—now more than ever before—cannot afford to close any channel, not even the smallest, by which knowledge of the vitality of the industry can be got across to the public. No opportunity should be missed of putting on permanent record the printed word, the work that is being done to modify, to improve, and to adapt the gas industry to its new form of ownership. Who better to keep all this knowledge vital and renewed than the man on the spot—the local manager.

Brighter Headlines

When the same old events come round year after year it is difficult to make the report reflect the excitement and interest they create among their sponsors. But these annual events are not quite so uneventful as they often look when they are written up in local newspapers. There is always something worth bringing out of the general story to make the report look a little different from the previous year's report. Gas deserves better headlines than it has been getting recently. Much of this is due to lack of appreciation of the value of the Press in publicising the virtues of gas as an off-set to the ill-advised ventilation of personal criticism in the newspapers. Why not send a short letter to your 'local' occasionally, eulogising gas, or replying in your own way to some obviously prejudiced viewpoint on gas. Too often such things go unchallenged because it is 'too much trouble.' Editors like a bit of controversial correspondence of this kind, but don't be too heavy or dignified in your approach. The reader likes to be lured on and the more simple the phraseology the better.

The public is quick to appreciate the human quality in a paragraph. Mr. Therm has always had personality and interest value, but it is necessary to achieve recognition of the fact in the public mind that gas is by no means dead and done with, but is a living thing with endless possibilities of growth and of improving the conditions of the housewife. Set out to create the impression that the industry is growing better and wiser as it grows older and larger. There is a surprisingly large amount of new material which has become available since nationalisation, in almost every phase of which a nugget or two may be turned up by careful digging.

It is the duty of every manager to rescue from obscurity 'sayings and doings' which deserve to be preserved in print either because of their own merit, or because they indicate the continuing life-process of renewal and regeneration which is taking place throughout the gas industry today, enabling it to carry on indefinitely its great work for the public weal.

Avoid indulging in uninspired sales talk in reports to local newspapers. 'Puff' paragraphs about gas that masquerade as news do little good to anyone—and the Editors will soon get tired of them and spike them or relegate them to the wastepaper basket. There is obviously a vast difference between an advertisement announcement and a news paragraph, and a proper balance should be maintained between the two.

Whose Responsibility ?

Give newspapers the right kind of news and Editors will print it. It have edited a local paper, and I was always glad to get items about the gas industry because of the universality of its appeal. There is no need to enumerate the many items which come under the heading of 'news,' but it is essential that someone should be made responsible for the physical action of writing and forwarding the paragraphs. An Editor is a busy man and cannot be expected to take things over the 'phone.

I would like to express my personal appreciation at being permitted to take part as the board's guest in what is almost a family gathering, for guests who are admitted to that privilege realise their advantages.

In spite of what Byron said, Editors are not—

> Would-be satirists, or hired buffoons,
> Monthly scribblers of some low lampoons,
> Condemned to drudge, the meanest of of the mean
> To furbish falsehoods for a magazine.

Rather think of them as Emerson did in his essay on 'Society and Solitude' when he said: 'They do their best to make every square acre of land and sea give an account of itself at your breakfast table.'

The Associate Membership Examination of the Institution of Heating and Ventilating Engineers (Sections A and B) will take place during the week commencing April 23, 1951. Section A will occupy Monday, Tuesday, and Wednesday of that week, and Section B will occupy Thursday and Friday. There will not be a separate examination for Graduateship, as candidates for this grade are now required to pass Section A of the Associate Membership examination. The examination will be held in London, but consideration will be given to arranging provincial centres if there are sufficient candidates from any particular area. Applicants must submit completed proposal forms for the consideration of the Membership Committee before they can be admitted to the examination. New candidates desirous of entering for the 1951 examinations should submit their proposal forms not later than December 31, 1950.

THE GAS INDUSTRY AND THE PRESS

By ARTHUR C. CROSS,
Assistant Editor, Gas Journal.

UNLIKE the gas industry, the Press remains a function of private enterprise in a highly competitive field, and the fact that two papers on an identical subject appear on the agenda is a reminder that while the authors are good friends of many years' standing they are at the same time in vigorous competition in their endeavour to render the best possible service to the industry.

In a paper to the Institution of Gas Engineers in 1941 on 'The Technical Press and the Future of the Gas Industry' the late Rupert King, speaking of a suggested division into watertight compartments of the ground to be covered by the gas papers and the allocation to the various existing periodicals of the subjects which they alone might handle, said: 'The industry would have no Press at all were it not for the private enterprise of those who hope to make a living by publishing newspapers for it. There is,' he went on, 'continuous competition for the favour of readers and advertisers, and it is difficult to visualise any basis short of joint ownership on which the partition of the field could be agreed.' Mr. King went on to question whether the elimination of competition would be in the industry's best interests, and suggested that to those who complained of overlapping the answer was clearly that each periodcal has its own style of presentation, and the reader can take his choice.*

Experience in non-technical as well as technical journalism has proved that while the two spheres differ in many respects there is a common aim—the responsible presentation of news in a manner interesting to the reader—an aim that cannot be achieved without the willing and understanding co-operation of those who create the news. Neither technical nor non-technical Press has unlimited space, and the Editor must select his material entirely on the basis of 'news value,' having regard to what is 'news' to his particular readers.

The Local Weekly

In non-technical papers gas news is in competition not only with rival fuels but with every conceivable bit of news, and it is unfortunately true to say that many papers appear to be even less interested in gas under nationalisation than they were when the industry was administered by companies whose directors were well-known local figures, or by gas committees whose reports frequently aroused discussion in the local council chamber.

The work of the gas consultative council is an aspect of the industry that is worthy of some consideration. Most papers would be pleased to publish paragraphs about the consultative council and its local committees if someone were responsible for providing them. Even the Technical Press has so far failed to arrange for complete coverage of the gas consultative council meetings, yet personal attendance at about 20 meetings (in various areas) to date has impressed one with the possibilities of news stories which would reflect credit rather than discredit upon the gas industry.

The local official can do much by keeping the Press informed about the personal activities of staff and employees; long service records or 'human' stories of family traditions in the industry; displays, demonstrations, exhibitions, and 101 other domestic affairs. The important thing is to cultivate friendly relations with the editor and his staff.

The National Press

The national Press is probably better served from area headquarters, although 'news' is such an unpredictable thing and likely to break out anywhere at any time that no hard and fast rule should be imposed. Within the accepted limitation that matters of high policy must be dealt with only at headquarters, the local or group officials can help substantially in getting a good Press.

Local journalists are in many instances accredited local correspondents for the national papers and news agencies, and for the Technical Press, and the more positive news—duly authenticated by the responsible officer—they can get the better pleased they are. Sir Edgar Sylvester recently said that, from the point of view of too many newspapers, nothing about the nationalised industries was 'news' unless it was adverse criticism. For good or ill, nationalisation is an accomplished fact, and stories about grid developments, plans for large central works, integration, industrial gas utilisation in new factories and the like are generally acceptable to the Press. Such stories might come best from the area of the group, but there is no reason why the engineer and manager at the small works should not amplify them by way of personal interview. 'Big' stories may well come from little works and the Press might be encouraged to come and ask questions—perhaps in the presence of an area official if policy is likely to arise.

The Technical Press

Technical papers, like the rest of the Press, depend for their existence on offering an attractive proposition for advertisers, but that does not imply that the advertisers dictate either policy or style, because obviously the periodical which is most esteemed by readers constitutes the most profitable field for advertising. The bulk of the readers are professionally engaged in the supply side of the gas industry or with contracting firms and makers of gas appliances; the rest are Government officials, members of rival fuel industries, exporters, statisticians, and the like, all of whom take their Technical Press seriously and form their opinion of the industry largely on the basis of what they read in its own responsible Press.

Many engineers and managers are personal friends, but few are regular correspondents. The short papers presented at the last two meetings of the 'Wales and Mon' proved that many of them had had experiences which would have made valuable 'news.' It is not suggested that they should prepare and submit to us short papers whenever they have done any of the things mentioned at the meetings referred to, but it is opportune to ask whether, for example, the North Wales seaside resorts have had any abnormal outputs or large scale hotel or other installations during the past so-called summer; whether the domestic load in the Welsh mining areas is still growing in spite of cheap coal; what new gas-heated plant has gone into the new factories; or what has been done in South Wales with the pipes and other supplies which the Government refused to let some of the other area boards use because of the prior claim of South Wales.

Gas men are extremely busy people and have to fill up a lot of forms—a group committee convener remarked the other day that it would probably pay the Area Board to have an official, mobile, form-filler to relieve engineers and managers of some of their work. One hesitates to suggest anything which would increase the burden of their 'paper' work, but dare one ask whether they might take extra carbon copies of certain of their reports and let the Technical Press have them—for release only after submission to headquarters, if you like, and even then with indication of what is still confidential and what is not.

Mention of form filling raises the question of the annual directories issued by the Technical Press. Such books are of little use if their contents are not accurate. Just lately we have heard of the makes of certain undertakings in Wales being exaggerated in the current issues—the figures being those supplied in the autumn of 1949. Beyond inviting answers to questionnaires and taking advantage of the great help afforded by area officials, which is greatly appreciated, the Press has no means of checking the accuracy of the figures supplied.

It is understood that Wales has not, and never intends to have, any public relations or press officers but it is good to know that the board is anxious to make all local engineers and managers, and particularly those at group level, 'Press and publicity conscious.'

The industry is urged to take the Press into its confidence as much as possible. As Mr. J. R. W. Alexander said in the discussion on Mr. Rupert King's paper: 'Private enterprise has served us well in the past, so much so that we take our Gas Press for granted and do not extend to it the help which we are capable of giving and in fact are willing to render.'

* Further views on the gas industry and the Press have been expressed in papers by Clifford A. King (*Gas*, Vol. 3 p.260) and Norman S. Smith (*Gas.*, Vol. 3, p.782).

AN ENGINEER'S THOUGHTS ON COKE*

By C. A. DEAS, M.Inst.Gas E.
Area Coke Manager, Eastern Gas Board

UNDER nationalisation, it is worthy of note that coke is considered of sufficient importance to justify the setting up of a National Coke Committee composed of members of the Gas Council.

It is perhaps not without significance to point out at this stage that today coke is responsible for at least one-third of the industry's revenue, and represents in potential heating value nearly twice the amount of heat distributed as gas.

Despite what has been done by research, there is little prospect in the foreseeable future of a system of complete gasification being evolved, which would enable gas to be sold at a price permitting its general use for any heating purpose, be it domestic or industrial.

Economic necessity on the part of the large majority of consumers will ensure that, for many years to come, there will be a demand for solid fuel in some form or other. The Simon Report, adopted by the Government, visualises smokeless zones which will require the use of smokeless fuel —and what better fuel than coke. Moreover, as a nationalised industry, we should be prepared to play our part in smoke abatement, with its benefits to the nation as a whole, by insisting on the eventual carbonisation of all bituminous coals and their replacement in domestic grates by coke.

The author would take this opportunity of quoting an extract from his Presidential Address to the London and Southern Junior Gas Association delivered in June, 1948:

'As those who are on the works know, a few cold days, and outputs begin to climb rapidly, and to meet this extra load one has to have sufficient plant available, and what is even more important, sufficient trained operators—not an easy matter in these days of labour shortage.

'Few works have sufficient holder capacity at peak load periods more than to level out hourly variations in outputs during the day, and coupling works up on a grid system does not necessarily meet the case, for the reason that all are likely to be affected in the same way by weather conditions. (The electric grid is, I think, sufficient evidence of this point.)

'Compare the winter of 1946-7 with 1947-8. If sufficient plant was available fully to meet the demands of the former winter, then no little plant must have stood idle during this latter winter. In other words, with loads as they are at present, one must always have plant available and labour ready, to meet the demand which may only occur once within three or four years, or perhaps two or three weeks in a normal winter.

'Our electric friends have no alternative fuel which they can offer their consumers to enable them to reduce their peak load, but we, as an industry, are in the very fortunate position of being able to offer a complete service in the form of gas plus coke, capable of meeting any demands without thought of shedding.

'I feel we would be very unwise, bearing in mind the uncertainty of the average English winter, not to do everything in our power to develop coke, and to encourage our consumers to use it at peak loads; particularly as they are usually in a position to store it, though perhaps not in such large quantities as we might hope. By storing coke the consumer is storing potential therms for use at peak load, thus enabling the works to run more efficiently and economically, by virtue of the reduction of peak demands. This would ultimately be reflected in the price of gas to the consumer.

'Now, while I would very much like to see the day come when we sent out nothing but gas, and are freed of the main problems of handling, preparing and storing coke—not to mention getting it delivered to the consumer's premises—I feel that our salvation is not in a nothing-but-gas industry, because even if suitable plant were designed capable of giving us complete gasification at a commercial price, we should have even bigger peak loads to deal with, and no little alterations would be required to the normal gas distribution system to enable it to deal with the peaks which arise.

'No; pending some revolutionary departure from present day gas-making methods our future would appear to lie in the development of a two-fuel service, and we should aim to improve the combustion characteristics of our coke, so that it will burn with the minimum of trouble in any open fire grate.'

The gas industry is essentially a two-fuel industry and should look upon coke as an equal partner to gas, not as a competitor or second choice. It should sell heat service in the form of a combination of gas and coke proportionate to the heat needs of the consumer—be he domestic or industrial—and his ability to pay.

This heat service must be backed up by full consumer sales and service organisation. Today gas enjoys this service, but very little service is given with coke. In fact, the amount is negligible when one takes into consideration its important contribution to the industry's revenue account and its thermal value.

A Fundamental Difference

There is a very important fundamental difference between the sales service required to sell gas and that to sell coke, which is only too often completely overlooked. The gas salesman, having sold a gas fire to a consumer, has no need to give any further sales service to ensure that he only burns gas in that fire, because quite obviously he has no alternative.

To sell a coke consuming appliance, however, is not sufficient, since this appliance can (and often does, unfortunately) burn other types of fuel. Each time the consumer requires a fresh supply of fuel he has a number of alternatives to choose from. Therefore constant sales service is necessary to ensure that the fuel he orders is coke.

To encourage storage by the consumer, who often enough has only one bin which is used for coal, it should be well worth considering making available a suitable coke storage bin which could be supplied on simple hire or hire purchase terms. It might almost be worth supplying him with the bin free, on condition that he filled it during the summer months and thus eased the storage position at the works. A simple calculation will show that the resulting aggregated storage capacity would be of no little consequence.

In the case of the consumer living in one or two rooms, with no possibility of storage place, the answer might well be coke delivered in stout, sealed paper bags similar to cement; this I believe is actually done on the Continent.

Some 10 mill. tons of coke are being produced for sale each year, of which 2½ mill. tons only are disposed of in the purely domestic market, which is absorbing at present some 30 mill. tons of bituminous coal. There is obviously ample

* Paper to a joint meeting of the London and Southern Section and South Western Section of the Institution of Gas Engineers, November 7, 1950.

scope for development of sales in this market. In fact, it is in the national interest to carry out such development work.

In looking at the present day coke position, it must be borne in mind that some ¼ mill. tons is going into the export market. This is mainly because this market enjoys a higher return than the home market and competition from continental coke has not yet become effective, although there are indications that this position may change in the not too distant future.

It is also necessary to remember that the coke available for sale in 1938 was 7¼ mill. tons per annum. Today coke is being produced for sale at the rate of 10 mill. tons per annum. Much of this extra 2¾ mill. tons is going to markets which have resulted from the shortage of coal—*i.e.*, unstable markets, and it is felt that now is the time to stabilise these markets, by adequate sales and service effort, against the day when the position will change.

There is, of course, ample room for development in the central heating and industrial markets, where the bulk of our coke is sold, but competition here is more severe from small coals consumed on mechanical grates and completely automatic oil installations.

Stabilising the Markets

One often hears it said that there is either too much or too little coke, but surely this is the result of the scant attention which has been given to the securing and maintenance of really stable markets. One of the greatest difficulties in stabilising coke markets is that quite often coke production varies as a consequence of changes in C.W.G. policy (not always within the control of the industry—*e.g.*, coal shortage) without any regard to the coke market. To the author, it would seem quite wrong to obtain new outlets for coke—be they domestic or industrial—and then fail to consider the needs of these markets when preparing gas-making programmes or contemplating changes in such programmes.

Speaking as an engineer, with many years experience of the problems involved, one nevertheless feels that engineers, if they desire the best return for their coke, as they obviously must, should consult those responsible for its marketing when preparing or changing gas making programmes. A quantity of extra coke put on the market, without prior notice, can be just as much an embarrassment as a failure to meet commitments. Constant consultation between producers and those responsible for marketing, assisted by up-to-date market surveys, seems essential to avoid these difficulties.

When the works yard is clear of coke all is often considered well, but let the reverse occur and someone is despatched poste-haste to find a market for the surplus, and all becomes quiet again until the next crisis arises. The day is fast disappearing, however, when one could just dump one's coke on the market without any regard to its needs.

While the industry is completely in the hands of the Coal Board, both from the point of view of coal quantity and quality, nevertheless it should look forward to the day when all the coal needed will be available. In the meantime, to hold stable markets, close collaboration between engineers responsible for coke production and those responsible for its marketing seems essential. Until one sees into the marketing side one does not realise that it is quite often working backwards—*i.e.*, instead of the consumer deciding consumption, as in normal commerce, it is decided for him by the producer, who only too often allows the requirements of his gas load to dominate his coke production completely.

The sale of coke is very much on a seasonal basis, and therefore, like gas, will follow weather conditions. With gas sales it has been possible to calculate on a 'degree day' basis the effect of weather, and, as a result, to ensure that any demand within reason will be met. Similar calculations should be possible in the case of coke, but they would depend, as already visualised, on production controlled against stabilised markets—in particular by the use of C.W.G. plant to give some control over the amount and quality of coke available for sale, as well as providing peak load gas. In other words, it should be possible with a good sales policy co-ordinated with controlled coke production, adequate stocking, and loading facilities at the works, to ensure that the bogey of too much or too little coke does not arise, and as a consequence coke revenue is not subject to the disturbing influence of the former state in particular.

For many years now it is reasonable to say that there has been no serious problem at all in disposing of the coke that has been available for sale, although there have, no doubt, been some temporary local surpluses. Speaking generally, little or no serious sales effort is, or has been, made on behalf of coke, nor has any really effective consumer service been given.

This state of affairs is in very many cases solely due to the shortage of competitive solid fuels and is purely artificial. Let the supply position of these latter fuels ease at all and we shall be faced with the problem of finding outlets for coke which will be inevitably displaced by coal. Many industrial consumers are in reality compulsory users of coke and, in the absence of any sales effort to convert them into willing consumers, they will turn to coal again as soon as circumstances permit. This sales effort is required now; it will be too late when the position changes. Such sales effort would also enable an estimate to be made of the amount of business which could not be held under any circumstances with a free market, and allow new markets to be sought out in readiness to absorb the coke displaced as and when it becomes available.

It would seem that movements of coke which are taking place today, particularly by rail, and which grew up under the pre-nationalisation structure of the industry, require careful examination. Present-day conditions of twelve area boards allow a very much broader view to be taken and should enable these movements to be much reduced at no little saving to the industry, apart from the national aspect of freeing the transport for other duties.

It would also appear that boards with potential markets must be prepared to develop them for the good of the industry as a whole and not be content to dispose of their local production and take no further action.

Sales Organisation

Surely the more boards as a whole develop stable markets to sell coke (whether produced locally or elsewhere) the more certain are they individually to maintain their revenue from coke. Each area should therefore have an efficient sales and service organisation incorporating suitably trained personnel, together with publicity and showroom accommodation, to sell coke service.

To wait until a buyer's market arises will undoubtedly be too late, since once coke prices begin to drop because of a buyer's market, it is very unlikely that it would be possible to recover them again; certainly not to the high level in comparison with coal at which they are standing today. It is hardly necessary to dwell on the likely effect on the price of gas should the revenue from coke decline. A drop of 3s. 4d. a ton would necessitate an increase of the order of at least 0.25d. per therm in gas price to maintain overall revenue.

There are opportunities throughout the coke marketing side of the industry for good technical salesmen; and a suitable course of training, such as is already in being for the coal industry, should be developed. Such personnel should be available to pay regular visits to factories and institutions using coke, to ensure that they are getting satisfactory service and, in particular, getting the best out of their coke supply. Housing estates should also be visited with the same object.

From such information as is available, there is not the slightest doubt that many consumers with coke burning appliances are burning bituminous coal instead of coke. Apart from the loss of coke sales, in what should be our most stable market, the consumer does not get the performance from his appliance which he ought. Evidence is available that

domestic coke boiler installations, for example, have been badly fitted. The result is that the consumer gets bad service and immediately blames the fuel, whereas a visit by a coke service representative could put the whole thing right in a short time.

Actually, of course, there is room for a system of approving these appliances after they have been fixed by the builders, to ensure that they have been correctly installed. Sales surveys are necessary, particularly in selected areas, such as those where, as a result of additional carbonising plant, more coke will become available for sale.

The Simon Report, which, consequent on its adoption by the Government, has ensured that appliances suitable for burning smokeless fuel are installed in new housing estates, is of no little importance to our industry. Nevertheless, we must still be prepared to provide the necessary personnel to follow up and ensure that coke is the fuel used, and that the consumer is correctly instructed in its use.

Suitable for Requirements

If a commodity is to retain and expand its markets, it is essential that it be suitable for the requirements of the market in which it is sold; and this applies as much to coke as any commodity, particularly as it has to be sold in competition with solid fuels, such as coal, which do not require any special appliances to give satisfactory results.

Coke quality depends primarily on the type of coal from which it is produced, but much can be done on the works during its manufacture and preparation to ensure that it will give satisfactory results in the consumer's appliance. Its reactivity, for example, can be improved in static carbonising plants by the employment of short carbonising periods with high coal throughputs.

For the domestic market, it should be a deliberate policy to leave something of the order of 1½ gaseous therms in the coke to assist its performance in the open fire. Quenching should receive constant attention to ensure that the moisture content in any size of coke does not exceed 10%, though unfortunately far too often size 3 coke in particular contains up to double this amount of water.

From experience, the author is aware of the practical difficulties in keeping moisture in coke produced from static carbonising plants down to reasonable figures. The fear, or result, of hopper fires in particular gives rise to a tendency to prescribe over-quenching as a remedy. The problem should be approached on a basis that the moisture content must be held to a maximum figure.

The author's paper *Retort House Operation and Control**, read in December, 1944, dealt with one aspect of this problem, which is generally aggravated by storing run-of-retort coke in hoppers instead of first screening it into its various sizes.

Sizing of coke is, of course, another factor which should receive constant attention to ensure satisfactory results. To install a screening plant is not sufficient. Regular checking of the screen apertures is necessary, together with regular sizing tests of the coke as loaded into bags.

It is most important that screens are not overloaded. Therefore, it follows that plants should have an efficient and foolproof feeder incorporated at a convenient point in the feed to the plant. This may be an obvious point to many, but the fact remains that there are screening plants in operation without this control unit, with the inevitable result that overloading invariably takes place at certain times of the day and the sizing of the coke suffers. De-breezing units are essential at hopper outlet, since it is very difficult, almost impossible, to avoid the formation of some breeze at least during the travel of the coke through the hoppers, even when spiral chutes are fitted.

One finds a tendency to blame complaints of coke quality straight away to the fact that the coal is of poor quality and let it go at that. While I would be the last one to say that all is well with the coal we receive for gas-making, yet in so far as extra ash is concerned, much of this appears as free shale or bats, which, while very conspicuous, does not have such a serious effect on the performance of the appliance as is popularly supposed. Moreover, it is usually quite a small percentage of the total coke substance; nevertheless, this problem should be dealt with at the colliery.

While on this question of coke quality, attention should be drawn to the fact that, to be generally satisfactory, coke for open fires must be burnt in a specially designed grate, and it would seem that this factor may well limit the rate at which coke fires are installed in existing property, for the reason that the tenant is reluctant to incur the expense of installing a grate in a house which is not his own. The effect of the Rent Control Act gives the landlord little enough to carry out essential repairs, let alone install new equipment. On the other hand, more thought might well be given to the supply and installation of these appliances on simple hire or hire purchase schemes.

Mr. P. C. Gardiner, in his valuable paper *Considerations Affecting the Preparation of Coke**, to the Institution of Gas Engineers in June, 1946, refers to the large quantity of raw coal burnt annually by domestic consumers and the comparatively small quantity of coke burnt for similar purposes. Mr. Gardiner also drew attention to the need for producing a coke which will burn satisfactorily in existing coal-burning grates. He advocated the use of low-rank coals for this purpose, despite the fact that from a purely gas-making point of view they would not normally be carbonised. In brief, high-rank coals produce strong, dense cokes; low-rank coals produce softer, free-burning cokes suitable for domestic fires. High-rank coals produce the best gas-making results, low-rank coals poor gas-making results.

It has been stated that the best quality gas-making coals are likely to be worked out in the foreseeable future; yet in comparison there are ample supplies of the poorer quality low-rank coals. It would seem, therefore, that sooner or later the industry will have to face up to the problem of leaving the good gas-making but strongly coking coals to the coke ovens for the production of metallurgical coke, and using increasing quantities of the poorer gas-making but good domestic coke-making coals themselves, which it is suggested should be a pointer to the industry of the need for adopting a two-fuel marketing policy, as referred to at the commencement of this paper.

Mr. Gardiner's paper expresses so much of the author's own views on coke preparation and contains so much of value to those concerned with production, that it is strongly recommended for their consideration.

Best Coke Consumed on Works

It is only too often that the best coke is consumed in the producers, C.W.G. plant and even boilers. This arises from the fact that the works engineer is naturally out to get the best possible results from the plant under his control—a state of affairs which is encouraged by the method of assessing works results without full reference to the requirements of the sales side of the undertaking.

There is little point in using large, carefully screened coke in the C.W.G. plant in order that the plant shall produce to its maximum output. It would surely be better to supply the plant with low-grade coke, work it a little longer for the same output, and thus release for sale the good quality coke normally used. How many C.W.G. plants are required to work at maximum capacity for any long period? Very few indeed.

Normally, low-grade coke, or a size of which there is a temporary surplus, should always be used, good-quality large coke only being used when the maximum output is desired. This is a perfectly practical proposition, as the author can state from personal experience, though with the smaller coke more care is required at clinkering times on the smaller hand sets. The effect on capacity of the use of small coke is outlined in the work of Dr. F. J. Dent at Croydon, as recorded in the Institution of Gas Engineers' *Transactions* for 1934-35 and 1935-36—*The Controlled Operation of Carburetted Water Gas Plant.*†

The use of perfectly good coke for steam-raising—and the quantity is not by any means insignificant—seems indefensible.

* See *Journal* for January 10, 1945, page 53

* See *Journal* for August 21, 1946, page 312

† See also *Journal* for March 4, 1936, page 622

Even allowing for the extra quantity of breeze required to produce an equivalent amount of steam, there are ample supplies of this fuel available to meet the present steam requirements of the industry. In cases where, because of the capacity of the steam-raising plant, breeze firing is inadequate, it might be well worth while considering the mixture of a suitable proportion of low-grade coal with the breeze.

Quality Control

Most commodities of any consequence are invariably subject to a continuous quality control. Town gas is, of course, strictly controlled by independent examiners; and engineers take great pride in straight-line calorific value, specific gravity, and minimum variation of combustion characteristics. Yet how few works make any attempt to provide a constant quality control of their coke.

There should be such a control whereby at least moisture, ash, and sizing tests are carried out at regular intervals on samples of coke provided by selecting random sacks of coke from the loading bays. Just as the average engineer does not resent independent tests of his gas quality, so should he also be prepared to look upon tests of his coke quality by an independent authority as being of assistance in maintaining the standard set by his own works' quality control. On the larger works this should present no difficulty whatever, but on smaller works it would probably be necessary to arrange to send such samples, taken by some independent person, to a central testing station.

As time goes on, production will be more and more centralised in large works, and experience has shown that the carbonising unit with recuperation does not normally produce more than some 50% of the steam required to meet its power requirements. In fact, with improved methods of heat exchange and conservation of heat in the carbonising unit, which is where future progress lies, the waste-heat steam production will drop. Augmentation flues are, in the author's view, economically wrong though technically sound, since there can be no justification for consuming perfectly good coke, for which there is an unlimited market, to raise steam when there are ample quantities of breeze available. Apart from that, consequent upon the use of low-rank coals together with improved and extended screening plants, breeze production will unfortunately tend to increase. These screening plants will, however, ensure that breeze is not sold with the coke, which so often happens today, and is not confined to the smaller works.

There should be no difficulty whatever in utilising a high percentage of the breeze produced for steam production. It is thought, however, that there is a case for reducing nuisance from grit emission by removing the fines below, say, $\frac{1}{4}$ in. from the breeze before it is burnt, and blending these back into the carbonising plant with the coal. Screens are coming on the market which will deal satisfactorily with this separation. Much work has been done in the past on breeze-blending and it is reasonable to say that the difficulties which have arisen have not been insuperable. There is also a market for this de-dusted breeze burnt on mechanical stokers for industrial steam raising.

Coke Stocking

If stable markets are to be maintained for coke, then the works must be prepared to carry stocks of coke to meet reasonable demands and, what is of extreme importance, never run out of coke. It is a fact that some engineers are quite unconcerned when the works yard is completely clear of coke; yet the same people would be horrified at the idea of running out of gas.

Coke stocking in the past has been generally a very haphazard sort of affair. Few have any very definite views as to the quantity of coke which should be held in stock, the amount usually depending on the ground space available. It is felt that, from the figures now being returned by all works on the A.B.1 form, together with figures arrived at from the degree day calculations referred to in the first part of this paper, it should be possible to give each works a maximum and minimum stock, which should be carried to meet anything but abnormal commitments. These latter would be met by supplying coke from works able to carry more than their required maximum stock.

The control of coke movements on a broader area basis, possible as the result of nationalisation, should be of great assistance in assuring that stocks are kept within desired limits, and would enable any local temporary shortage or excess of coke to be dealt with promptly.

Coincidental with stocking space comes the important question of reclaiming, a matter far from satisfactory on the majority of works. Here again it is possible to estimate the required rate of reclaiming in order to cover any but abnormal demands. Loading facilities are also far from satisfactory on many works. Again, it is possible to calculate the facilities required to meet all normal demands.

By and large, the question of coke loading, stocking and reclaiming has received little attention in the past, and few works have really got down to the basic facts and provided adequate equipment. If stable markets are required, then a stable service must be given. The aim should be a 24-hour day coke service 365 days a year, as is our proud boast with gas service.

The cost of stocking coke is often expressed in terms of cost per ton of coke stocked. This should surely be expressed as a cost per ton on the total coke sold and really represents an item of consumer service. It should be set against the extra revenue resulting from a stable market.

Screening Plant

It is safe to say that, in general, outside the larger works—and some of them have far from satisfactory plants—the provision of proper screening plant is a matter which has received the minimum of attention, often because of the capital cost involved. In a nationalised industry, however, where the strong should assist the weak, the problem can be tackled on a very much broader basis to the ultimate benefit of all.

Within a limited period of, say, five years, *all* coke, whether from large or small works, should be screened and sized to I.G.E. standards and stored in overhead hoppers provided with de-breezing units and sack loading equipment at the hopper outlets, together with chutes for bulk-loading. In the smaller and medium sized works, such plants can usually be quite easily operated by one man, a matter of considerable importance in view of the high cost of labour, apart from the difficulty of obtaining it.

The de-breezing, sack loading, and weighing gear can be a single unit, mounted on wheels, to enable it to be run along underneath the hoppers, according to the size of coke required to be loaded. On a large works, screening plant together with ancillaries is put in as a matter of course and designed to suit local conditions.

There must be, however, a limit to the size of works below which it would be uneconomical to install a screening plant as outlined above, and this is probably of the order of an annual make of 100 mill. cu.ft. Below this size one can, of course, put in simple screening plants without hoppers and sack loading gear, and up to a point this does meet the problem inasmuch as it does at least size the coke.

This problem requires looking at on a long term basis, and when a works is not large enough to justify a complete plant as envisaged above, then a decision should be made as to the likely future of the works. If it is to be developed, then a coke-screening plant should be installed large enough to take the ultimate coke production of the developed works. Until then coke from works which are intended to be ultimately shut down and supplied from it could be transported to it for screening and distribution. It is realised that the problem is not quite so straightforward as has been written and would require much detailed consideration. Much capital cost could be saved by each board adopting a standard type of screening plant, complete with ancillaries, the only variation being size of plant and method of getting the run-of-retort-house coke to it, which should be decided by local conditions. In the meantime, there is much work which can be done to ensure that existing plants are being worked

efficiently to produce the standard sizes of coke, and that they are provided with such ancillaries as controlled feed, de-breezing equipment, sack loading, and weighing machinery. Each plant should be inspected by a competent engineer to ensure that it really can—and does—do what a properly designed and equipped plant should do, and he should be empowered to give a certificate of approval, which would be subject to revision from time to time in the light of the quality control referred to earlier. When a plant is not up to the required standard, this engineer should be in a position to make recommendations to the local management as to what is necessary to bring the plant up to standard. If the industry really wants stable markets for its coke, with all that this implies, then we as engineers have got to produce our coke in accordance with the requirements of these markets.

Under nationalisation, it is believed that there will tend to be more and more specialists, as was, of course, already evident in the larger undertakings before vesting date. Coke is a good example of something which requires specialised control for both preparation and marketing, and the day must come when coke, once it has left the retort house, will be handled by specialists. In addition, boards must be prepared to sell coke with an eye to the national position, and in doing this will ensure maintenance of their own prices.

The Simon Report, which has been accepted by the Government, recommends that the main winter space-heating load should be taken up by solid fuel, coke being an example. The report visualises a total consumption of some 20 mill. tons of smokeless fuel in 20 to 30 years' time. Our present total production is only of the order of 10 mill. tons annually!

DISCUSSION

Mr. **T. C. Battersby,** Chairman of the London and Southern Section, said it was as true today as in the days of Thomas Newbigging that profits were made in the retort house. They might have high pressure selling campaigns and other schemes, but the consumer's reaction would be based ultimately on the use of coke. On the whole he felt they were in sympathy with what Mr. Deas had said, but some eyebrows had been raised now and again.

Dr. **F. J. Eaton** (North Thames Gas Board) said he had often wondered what the engineer thought about coke and when he heard the title of the paper he thought he was going to find out, but he remained in the dark. Many efforts had been made in the past to give the engineer a sufficient guide as to what those on the sales side and the appliance designing side were trying to do. There had been many papers on the subject, but there was still much room for co-operation between the production and utilisation sides; only by such co-operation could they hope to make progress. A great deal of progress had, in fact, been made. They had the Simon Report, which had led to the setting up by the Ministry of Fuel and Power of an organisation to approve domestic appliances, and they were now finding that instead of having to sell coke appliances such appliances were being put into new housing estates by the local authorities. That was a very big step forward, and one for which they should be thankful.

He took exception to a remark in the paper that the sales side had not given consumer service. They had provided consumers with appliances in which coke could be burned satisfactorily. The question of coke quality was very important, and he suggested that they should first try to get very clear in their minds what they meant by coke quality. On the appliance designing side they wanted coke of consistent quality. They wanted to know that they could buy next year the same sort of coke that they were getting today; what the level of that quality should be was rather more difficult to determine. Mr. Deas had suggested that so far as sizing was concerned they should adopt the I.G.E. sizes. Those sizes were chosen largely by the London and Counties Coke Association as being suitable for use in an area south of a line from the Wash to the Severn, but he did not think it could be suggested that those sizes would be equally suitable for Scotland, and it might well be that different areas would require different sizes. That might sound revolutionary, but it must be realised that coke markets had been built up on sizes which had been produced in particular areas.

From the point of view of appliance designing he could see no difficulties because generally speaking a wide variety of appliances had been developed for different coke sizes. He questioned whether they wanted to keep the domestic grate in existence. It would be much better for all solid fuel producers if they could get away from the open fire. Mr. Deas had mentioned in his paper that solid fuels such as coal gave satisfactory results. He disagreed entirely. The coal grate gave out very large quantities of smoke and the C.U.J.C. was doing all it could to get rid of it by putting in special appliances for the purpose. On the question of specially reactive coke, the need was perhaps apparent today because of the open fire and the need for easy ignition. With a domestic boiler it was possible to use a much wider range of combustibility in coke than with the domestic fire.

On the question of consistency they had very little information at present. Taking sizing and moisture, they did not know whether to expect 80% sizing within a normal size grade of coke, or whether it should be 90% or 60%. Through the Gas Council's technical committee efforts were being made to obtain data. One hundred plants were supplying data from which it was hoped to lay down a standard for sizing which could be observed by the producer. Moisture was taken as an average figure, somewhere between 3% and 10%, and he thought it would have been well if Mr. Deas could have emphasised the average content.

He thought the engineer should be reminded of the difficulties which arose from going more and more into the domestic market. Figures showed that in the domestic market there was a big load in winter and a low load in summer, somewhere in the proportion of 6½ : 1, whereas in the semi-domestic market the figures were 1½ : 1. He suggested that if they were going all out for the domestic market they should provide storage for extra coke during the summer months.

Mr. **P. C. Gardiner** (Eastern Gas Board) said the paper was characterised by vision and courage—vision in dealing with long-term policy and courage in regard to more immediate recommendations. One difficulty in adopting the author's scheme for using coke as an alternative for space heating in the winter was that the majority of the coke offered for sale today would not burn satisfactorily in the ordinary open fire. For that reason specially designed coke grates were on the market, but those grates did not constitute the complete answer to the difficulty. He had no objection to the coke grate; on the contrary it was an admirable contribution to the general subject but at the same time it had its limitations and in his opinion a more satisfactory solution could be found in selecting coal for gas-making purposes which produced an active coke of light bulk density which would burn in almost any kind of grate. The specially designed coke grate could not satisfy all demands for many years to come. So far as the supply went it was admirable but its place was in the new house.

Production of reactive coke was the only practical way of implementing the Simon Report and he urged that serious attempts should be made to test the economics of using such coal as would yield that type of coke. The coke would be of greater value in the open fire than the general run of coke now sold, and it might well be that as a consequence it would command a higher price.

Mr. **D. G. Rose** (Coke Manager, North Thames Gas Board) welcomed Mr. Deas's paper just as he welcomed Mr. Deas himself as a new colleague on coke and as a kindred spirit. He, too, came from chief engineer's department to coke department and had found that the change-over was not, in fact, very far removed. Because of an essential difference between gas and coke as sales problems he was firmly of opinion with Mr. Deas that coke marketing, although a commercial activity, was one that was inseparable from works affairs, especially when operating on a large scale. Mr. Deas had referred many times to a stable market. Personally he had never been quite sure what was meant by the term although it was so widely used. He imagined it must mean a sort of salesman's Utopia; if so, he was afraid he could not share the optimism expressed by Mr. Deas that 'it should be possible to ensure that the bogie of too much or too little coke does not arise,' if only because of the demands of their biggest, highest priority, most exacting, and most fickle customer, the water gas plant.

He agreed there were times and circumstances in which the water gas plant could be used to alleviate shortages and surpluses of particular grades, and through the co-operation of the engineers he could speak of valuable assistance received in that way, but he felt that it was a corollary of the main purpose of water gas plant that during the winter at least it could only aggravate the difficulties. Too much or too little always had been and, in his view, in some degree always would be the coke manager's problem—and he had a feeling that with-

out it there might be little need for a coke manager. But having said that, he supported the more strongly all that Mr. Deas advocated as to facilities for the preparation for sale, stocking and loading, and would refer to stocking in particular, mentioning three points. First, a fundamental principle in the economics of coke was that the demand for it was very inelastic. By which he meant that other things being equal a relatively big change in price was necessary to influence the demand to any appreciable extent. Put another way, it could be an expensive business solving a stock problem by sacrificing it to the market. Secondly, they had to realise there were usually substitutes for coke and what was happening with them could affect coke demand very considerably. Thirdly, there was the influence of weather conditions, and here the position was especially complex because of the water gas plant.

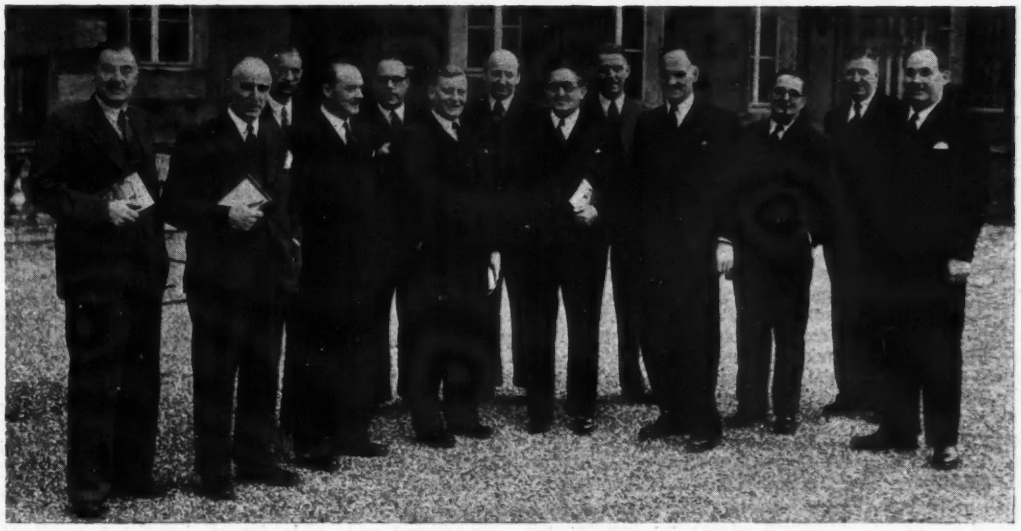
Mr. Deas suggested that with data now becoming available it might be possible to carry out degree-day studies, with a view to determining the right storage capacity, etc. He approved of this approach though he doubted whether they would find what they wanted in A.B.I. As an extension to work on the correlation of gas consumption and weather conditions, they attempted such a study in the Gas Light and Coke Company. Unfortunately markets had been so unstable and other things as usual so very unequal that it was necessary to go back some way to find data anything like homogeneous over a period of time sufficient to give results of real value. Nevertheless, taking the few years prior to 1939 it had been possible to produce a fairly clear picture of the nature of the variations in demand and supply in the London area, and it confirmed how futile and how unnecessary it was to adopt what were virtually panic measures.

They should provide the greatest flexibility in marketing arrangements and in works facilities. And in the latter he would include flexibility as to type and grade of fuel on the part of coke-consuming gasworks plant. Above all, every endeavour should be made to avoid unloading stocks on the market. He doubted whether anyone had lost money during the past 20 years by stocking coke, breeze, or other solid fuels, but he was convinced that in the same period gas undertakings had lost thousands of pounds by not doing so, and the unfortunate thing was that the full effects of this practice were rarely confined to the undertakings that had recourse to it.

Mr. **Deas,** in a brief reply, said he did not yet pretend to be an authority on coke. On the question of consumer survey, he agreed that the consumer should have the right type of coke, and know how to burn it. Dr. Eaton had suggested the possibility of different standard coke sizes in different areas, but speaking from recent experience of having had to import coke from other parts of the country, he advocated caution before adopting different sizes. There were still in use a large number of appliances designed to burn coal and it was highly improbable that they would be torn out to make way for specially designed coke burning appliances for a long time to come.

SOUTH EASTERN SALES MANAGERS VISIT LUTON

MR. V. W. STANTON, Commercial Manager, Mr. A. B. Seton, Sales Manager, and the Divisional Sales and Service Managers of the South Eastern Board visited Luton on October 26 as the guests of Electrolux, Ltd. After a tour of the refrigerator factory during the morning, they were entertained at lunch at the George Hotel, Luton, by Mr. S. Broughton, Managing Director, Mr. J. H. R. Homfray, General Sales Manager, and other executives of the Electrolux Company.



Mr. V. W. Stanton, Commercial Manager, Mr. A. B. Seton, Sales Manager, and the Divisional Sales and Service Managers of the South Eastern Gas Board, photographed at Sir Harold Wernher's residence at Luton Hoo.

In a welcoming message, Mr. Broughton said that he regretted he was unable to give encouraging news concerning future deliveries of refrigerators to the gas industry, for the supply of raw materials was deteriorating; the position now was worse than at any time since the war. However, the picture of Electrolux's refrigerator accomplishments since the war was not all gloom. In addition to the large number of refrigerators which had been sent from Luton into the overseas markets, and the free-standing models which had been directed towards the market at home, 125,000 built-in refrigerators had also been supplied for Government and local government sponsored housing schemes. Mr. Broughton sounded a warning note when he said that the management of his company, while planning to keep up production for the home market, would have to concentrate on smaller models to economise the use of sheet steel.

Mr. V. W. Stanton, replying on behalf of the guests, said how much they appreciated the opportunity of visiting Luton. He emphasied how imperative was the need for gas refrigerators for the consumers of his board, and said that while Mr. Broughton's message was discouraging, he hoped that the position might mend itself quickly.

After luncheon the party moved on to Sir Harold Wernher's mansion at Luton Hoo, where is housed the Wernher Collection of art treasures. The Curator, Major A. A. Longdon, D.S.O., O.B.E., guided the party through the rooms, pointing out the objects of particular interest, and then the visitors were left to roam and study at their leisure the beauty of pictures, tapestries, ivories and china, so tastefully displayed.

The visit concluded with tea, when Sir Harold Wernher Lady Zia joined the guests.

DEVELOPMENT OF A GAS GRID*

By A. W. ELLIOTT,
Divisional Engineer, Notts and Derby, East Midlands Gas Board.

THE East Midlands Gas Board, for purposes of administration, is divided into four Divisions—Sheffield and Rotherham; Notts. and Derby; Leicester and Northants; and Lincolnshire. Each differs in—

(a) type of load;
(b) the source of gas supplies; and
(c) density of the population served.

The purpose of this paper is to deal primarily with (b) the source of gas supplies and method of distribution—as it was at vesting date, as it has developed up to the present time, and how it might be further extended in the future, as far as the Notts. and Derby Division is concerned. It must be made clear at this juncture that the ultimate development outlined below is purely a personal viewpoint, and does not represent the confirmed policy of the East Midlands Gas Board.

I. THE POSITION PRE-VESTING DATE

The area covered by the Division as is implied includes most of the counties of Nottinghamshire and Derbyshire—approximately 1,200 square miles—and its full extent, together with the gas undertakings included, are shown on the accompanying plan (Fig. 1).

The schedule (Fig. 2) shows how the 25 undertakings comprising the Division are grouped into Sub-Divisions, and gives the annual volume of gas distributed (excluding sold to other undertakings), declared calorific value, and the source of supply for each undertaking as at vesting date.

A considerable proportion of the gas distributed was purchased from coke oven plants which were either owned privately or by the National Coal Board, and, furthermore, a number of undertakings received bulk supplies purchased from other undertakings. It will be apparent, therefore, that some interconnection of mains existed, and the extent of this interconnection is shown in Fig. 1, in full black lines.

The interconnection had mainly developed from two separate systems:—

1. The Derby undertaking gas grid constructed in 1930-32 to transmit coke oven gas from north Derbyshire to the town of Derby and extended in 1939-40 to receive additional supplies from Stanton coke ovens. In addition to the three undertakings receiving bulk supplies from this grid, five other undertakings were connected for the purpose of giving partial bulk supplies to assist them while they were repairing, reconstructing, or extending plant.
2. The bulk supply mains from the Grassmoor and Hardwick coke ovens to the Chesterfield, Clay Cross, Mansfield, Shirebrook, and Sutton-in-Ashfield Undertakings.

Although this considerable degree of interconnection existed prior to the nationalisation of the gas industry, the actual integration of undertakings took place slowly but steadily, mainly as a result of amalgamations by private companies following the purchase of a smaller by a larger undertaking.

With the exception of the undertakings actually amalgamated, all others now incorporated in the Notts. and Derby Division operated as entirely separate units, each deciding its own policy and making its own decision either to put down plant for the manufacture of gas or to purchase gas in bulk from coke oven owners or neighbouring undertakings. In the latter case individual contracts were made as between a willing buyer and a willing seller for such volumes and at such calorific value as suited the local circumstances. When an emergency supply was required by an undertaking physically connected to another able to give it, mutually agreed terms were arranged for the transaction.

The disadvantage of such a system is that failing agreement the undertaking requiring additional gas had either to restrict supplies to its consumers or to extend a works which in the interests of the area as a whole might be better closed down to take a whole bulk supply. Quite apart from the question of emergency supplies between undertakings due to shortage of plant, each undertaking operated its own plant or took supplies of coke oven gas under contract to suit its own requirements. One undertaking might have a reserve of carbonising plant standing idle while another might be operating C.W.G. plant to meet demand. There are nine works with C.W.G. plants in undertakings now comprising the Division, all of which might have been manufacturing at a poor load factor when one or two of the larger plants could easily have met requirements at an improved load factor.

In the absence of an over-riding control system for integrated undertakings these practices were unavoidable, though it is only fair to say that some co-ordination was achieved as a result of suggestions made by the Gas Engineering Advisory Boards and the Ministry of Fuel and Power; neither of these bodies, however, had authority to enforce recommendations.

II. THE POSITION AFTER VESTING DATE

The nationalisation of the industry brought all gas undertakings under one ownership, resulted in standardisation of policy at least over areas covered by Area Boards, and enable integration schemes to be developed more quickly without the degree of complication existing under individual ownership.

In so far as the Notts. and Derby Division of the East Midlands Gas Board is concerned, the general policy has been stated that manufacture eventually may be concentrated at a limited number of gasworks and coke oven plants, and that a completely integrated distribution system to cover all the undertakings in the Division may ultimately be formed.

Already further schemes for giving bulk supplies to undertakings not at present interlinked have been approved, and in some cases are under construction. While some thought has been given to the ultimate arrangement for grid supplies, so far detailed proposals have not been submitted.

The interlinkage of undertakings actual and in the course of construction, details of which have already been given, was sufficiently extensive to warrant the institution of a central control on a divisional basis to co-relate plant availability and daily gas demand.

In order to achieve this it was necessary to collect information at the divisional office from the undertakings, and an arrangement was made for all interlinked undertakings to supply by telephone, as early as possible each day, figures for gas stocks, plant output, and demand—the whole forming a picture as it were of the gas position in the division. As a result it has been possible already to co-ordinate the operation of manufacturing plant to make the best use of the available supplies of coke oven gas and to cover the repair of gas-making units by alternative supplies from other stations having spare capacity.

Cases were found where coke oven gas, though available, was being wasted during week-end days due to undertakings with whom the contracts were made finding themselves unable to take it. Needless to say, this practice has been avoided by diverting the surplus coke oven gas to other areas able to absorb it.

It has also been possible to avoid the intermittent use of a number of C.W.G. plants manufacturing small quantities by

* Paper presented to the Midland Section, Institution of Gas Engineers, Birmingham, on October 19, 1950.

concentrating manufacture at an improved load factor on one or two of the larger and more efficient plants. Recently the daily summaries have enabled the divisional office to programme and check closely the use of gas oil to save coal, thus enabling stocks of the latter to be built up for the winter.

It should be made clear at this point that the operation of the divisional grid is largely effected by improvisation, and methods of gas transfer are employed which would not be adopted in planning a completely new system.

One of the most successful has been to make diversions at coke oven plants where these supply more than one undertaking. The quantities supplied have been varied by agreement with the owners of the coke ovens, and these diversions take place before the delivery point of the coke oven gas to the grid.

There are, of course, limiting factors influencing the extent to which this method may be used—e.g., compressor capacities, sizes of mains, and, in the case of crude gas supplies, purification capacities. However, quantities up to 2.5 mill. cu.ft. per day have been diverted in this way from one of the coke oven gas plants in the Division. In some cases gas has been made available to an undertaking A requiring it by another undertaking B not directly connected to A, but indirectly connected through other undertakings—say, C and D. In this way B supplies C, C supplies D, and D supplies A.

It has been found that a limitation to transfer of gas is often imposed by differences in declared calorific value between undertakings. Where gas from an area of higher calorific value can be switched to an area having a lower calorific value, the reverse is not possible unless the whole of the lower calorific value gas can be directed into a works and enriched.

The obvious solution was to adopt a standard calorific value for all interconnected undertakings and, while the desirability of this was immediately apparent, considerable thought was given to the choice of the standard calorific value. It was finally decided to adopt 480 B.Th.U. as being best suited to the conditions imposed by the class of coal available for carbonisation and the type of plant existing and to be installed.

Fig. 2 shows the declared calorific values of the undertakings as at vesting date; all starred undertakings have been re-declared to the standard calorific value of 480 B.Th.U., and the remainder will be re-declared as occasion requires. Agreement has been reached with the owners of coke oven plants to supply purified gas at 485 B.Th.U. and crude gas at 500 B.Th.U. to permit air to be added for purification.

III. DEVELOPMENT

During the past 12 months the question of planning on a divisional basis has received very careful and prolonged consideration. In the main the following basic principles have been established:

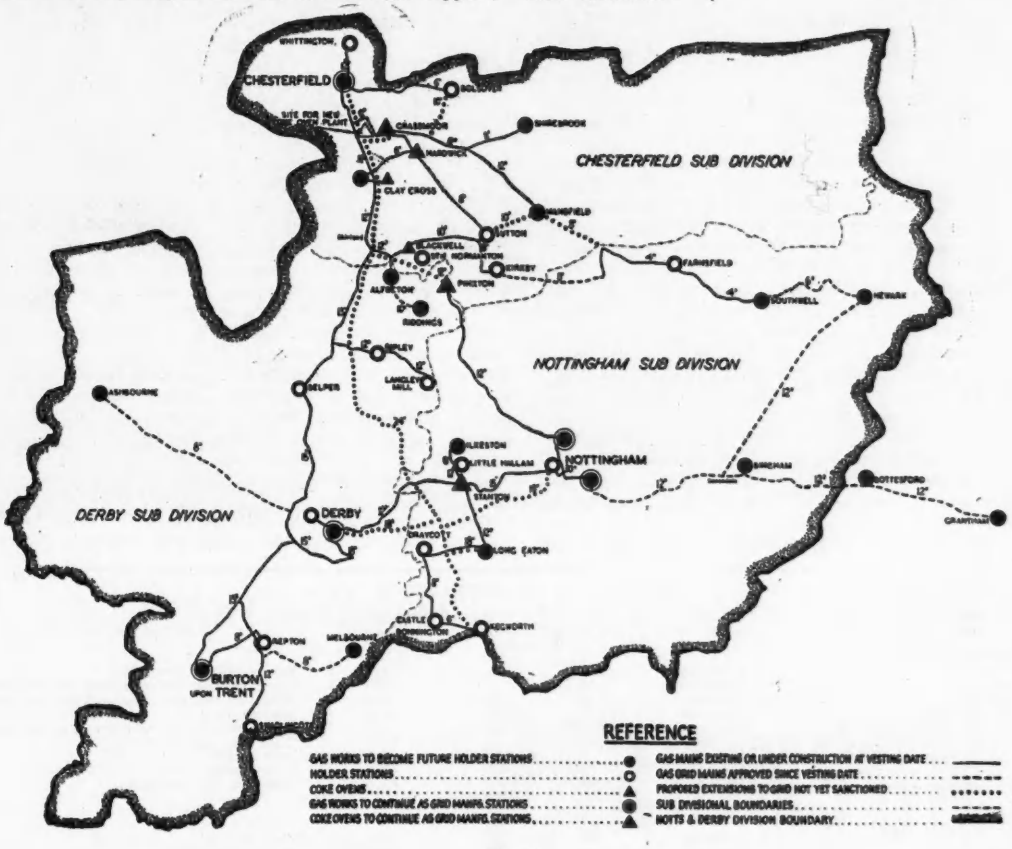

CHESTERFIELD
CHESTERFIELD SUB DIVISION
NOTTINGHAM SUB DIVISION
DERBY SUB DIVISION
NOTTINGHAM
DERBY
BURTON UPON TRENT
REFERENCE
GAS WORKS TO BECOME FUTURE HOLDER STATIONS
HOLDER STATIONS
COKE OVENS
GAS WORKS TO CONTINUE AS GRID MAINS STATIONS
COKE OVENS TO CONTINUE AS GRID MAINS STATIONS
GAS MAINS EXISTING OR UNDER CONSTRUCTION AT VESTING DATE
GAS GRID MAINS APPROVED SINCE VESTING DATE
PROPOSED EXTENSIONS TO GRID NOT YET SANCTIONED
SUB DIVISIONAL BOUNDARIES
NOTTS & DERBY DIVISION BOUNDARY

Fig. 1

1. That the forecasting of gas demand and planning of gas-making plant can be considered upon a divisional basis.
2. That the plant extensions should proceed at a limited number of works only.
3. As a result of (2), that substantial main links between the works to remain in operation are constructed.
4. Again following (2), that works to be shut down in accordance with an agreed schedule are provided with satisfactory bulk supply mains and adequate holder storage capacity.

In order to determine the adequacy of existing gas-making plant (together with plant under construction and on order) to meet future demands, the probable gas requirements over a ten years period have been forecast.

Records of weekly gas demand for each undertaking separately, and a weekly divisional total together with a divisional total to date are furnished each week by the

Board's statistical department. This service has been in operation since vesting date, and similar information has been collected and recorded by the Division for all undertakings as from January, 1948, so that weekly gas outputs for 1950 are now being compared with corresponding figures for two previous years. Thus a useful guide as to the trend in gas demand is provided.

Estimates for 10 years hence were made for: (a) Domestic; (b) commercial; and (c) industrial consumptions as follows :—

(a) The additional number of domestic consumers was based upon the local authorities' housing programmes over the period under review, and an assumption made that consumption per consumer for all districts would be brought up to the present average for the Division.

(b) and (c) Estimates for each undertaking based on past experience and known development were made over a 10-year period.

In planning manufacturing plant to meet future demands the important points to be considered are the maximum and minimum weeks or days requirements. The estimates under (a), (b) and (c) above were given on an annual basis, and it was assumed that the maximum and minimum weeks would continue to bear the same relation to the annual demand as for the past two years.

The minimum weekly demand excludes weeks affected by national or local holidays during which a section of plant would have to reduce load. Maximum and minimum days have been taken as one-seventh of the weekly figures, counting upon the maintenance of sufficient holder capacity to permit a regular daily input over a period of one week. After determination, the estimated maximum and minimum daily demand figures for the 10-year period were set out in the form of a graph.

In order to determine the plant available to meet the anticipated maximum and minimum demand, a schedule was drawn up showing the daily capacity of the gas-making units at each producing station at the present time, and the anticipated capacity year by year over the next 10-year period, after allowing for the additional capacity of new plant at present under construction or on order and reduced capacity of old plant shut down.

The schedule showed coal gas, C.W.G. and coke oven gas, the figures for the latter being determined after taking into account the latest available information provided by the coke oven plant owners.

Plant availability for the summer months was determined by allowing reductions of (1) 25% of the coal gas capacity for repairs and (2) all the water gas capacity, leaving 75% of the coal gas capacity, plus the whole of the coke oven gas available to meet the minimum days requirements. The figures for the divisional total of plant availability for winter and summer were plotted on a gas demand graph in order to demonstrate deficiencies or surpluses as the case may be.

The first graph giving this information was drawn approximately 12 months ago. It is at present being revised and adjusted as the result of actual experience in the past year, both for gas demand and plant availability, and the forecast will be projected one year further ahead. This procedure will be repeated at least every year or more frequently should occasion demand. Attached to the graph each year are notes explaining the reasons for changes.

Manufacturing Stations

As a result of estimating the gas output in accordance with the procedure outlined above, actual deficiencies or insufficient margin of gas-making capacity over demand have been revealed, making it necessary to consider the installation of new plant.

It is generally considered that the economy of operation of a works increases with size until a capacity of 10 mill. cu.ft. per day is reached, beyond which no further advantage is to be expected, but the same level of efficiency would be maintained. This assumption is made on the basis that all plant is of reasonably modern design, as obviously a small works with efficient plant can be more economical to run than a large works with inefficient plant.

As a basic principle, therefore, it would seem right to build up a limited number of works to the 10 mill. cu.ft. per day size, and then decide whether to add to this capacity or to put down a new works with a view to eventual expansion up to this capacity. Works with new and efficient plant, naturally, should be kept in operation and working. The ultimate size of a works above the 10 mill. cu.ft. per day size may well be decided by problems of distribution, not only of gas but coke.

On these principles the stations likely to remain in operation as producing units are distinctively shown in Fig. 1.

THE POSITION PRE-VESTING DATE

Undertaking	Ownership	Net gas distributed Mill. cu.ft.		Declared C.V.	Source of gas supply
Chesterfield Sub-Division :					
Bolsover	Company	38		*450	Bulk supply—Chesterfield
Chesterfield	Municipal	1,598		480	Manufactured, and coke oven gas purchased
Clay Cross	Company	168		480	Manufactured, and coke oven gas purchased
Kirkby-in-Ashfield	Municipal	71		*450	Manufactured
Mansfield	Municipal	670		*475	Manufactured, and coke oven gas purchased
Shirebrook	Company	143		*475	Coke oven gas purchased
Shirland	Company	40		480	Bulk supply—Clay Cross
South Normanton and Blackwell	Company	67		*450	Bulk supply—Derby
Sutton-in-Ashfield	Municipal	280		*500	Coke oven gas purchased
			3,075		
Derby Sub-Division :					
Alfreton	Company	95		450	Manufactured
Ambergate	Company	124		*500	Bulk supply—Derby
Ashbourne	Municipal	70		500	Manufactured
Burton-upon-Trent	Municipal	700		*475	Manufactured
Derby	Company	3,427		*500	Manufactured, and coke oven gas purchased
Melbourne	Company	28		*440	Manufactured
Riddings	Company	154		450	Manufactured
Ripley	Company	135		*485	Bulk supply—Derby
Swadlincote	Municipal	94		*450	Manufactured
			4,827		
Nottingham Sub-Division :					
Bingham	Company	12		450	Manufactured
Ilkeston	Municipal	335		450	Manufactured, and part bulk supply—Derby
Kegworth	Company	19		*500	Bulk supply—Long Eaton
Long Eaton	Company	800		*500	Manufactured, and coke oven gas purchased
Newark-on-Trent	Municipal	302		475	Manufactured
Nottingham	Municipal	5,280		475	Manufactured, and coke oven gas purchased
Southwell	Company	46		500	Manufactured
			6,794		
Total			14,696		

* Re-declared at 480, October 1, 1950.

Fig. 2

"..ah! that's better — thank goodness I got a

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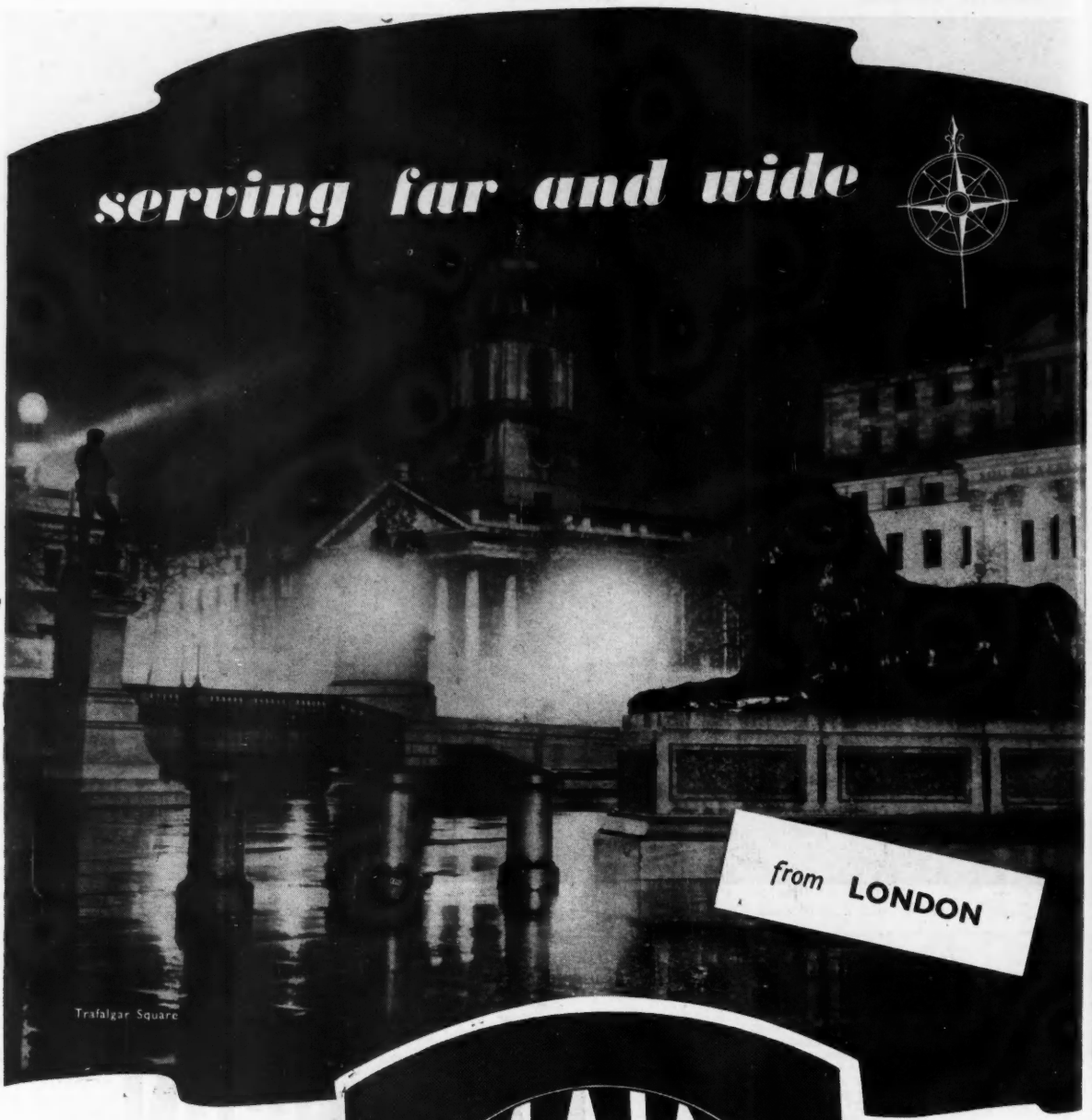
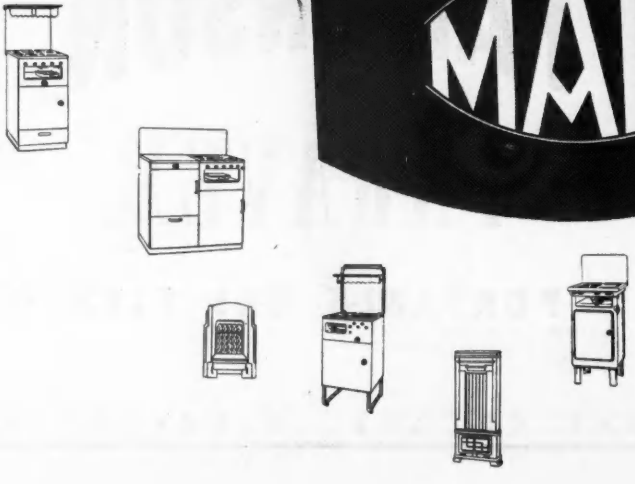


MAIN



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The effect of limiting the number of manufacturing stations is that substantial linking mains are required to permit the bulk movement of gas from the centres of manufacture to the points of consumption. Consideration has already been given to this question, and it would seem essential to provide a new substantial grid main system joining the three main gas-making centres at Chesterfield, Derby, and Nottingham, with subsidiary feeders for other stations.

Using part of the existing grid system where adequate in size, it is possible to develop a ring main principle which would enable alternative supplies to be given in emergencies.

The proposed extensions to the grid are shown in dotted lines in Fig. 1.

Bulk Supplies to Undertakings

The following is a brief description of two bulk supply schemes forming part of the divisional grid:

1. The Derby/Burton-upon-Trent/Swadlincote System.

This section was planned in 1948 by the former Derby Gas Light & Coke Company, and at vesting date was nearing completion. Gas was actually delivered to Swadlincote in May, 1949, and to Burton in September, 1949.

Although the immediate requirements were for a whole bulk supply for Swadlincote (100 mill. cu.ft. per annum) and a partial supply for Burton (180 mill. cu.ft. per annum) equivalent to approximately 0.75 mill. cu.ft. per day, the main was planned to give 6 mill. cu.ft. per day—that is, sufficient for a whole bulk supply to Burton and Swadlincote with margin for doubling the present outputs of these undertakings or providing eight times the initial requirements of the system.

The main size laid was 15 in. between Derby and Burton-upon-Trent with a 12 in. branch to Swadlincote. A new 8 in. branch is now being laid from the 12 in. Swadlincote section to give a bulk supply to the Melbourne undertaking.

The system is supplied from the Derby high-pressure ring main and feeds into the works are by meter and volumetric governor arranged for future remote indication and control.

2. The Nottingham/Newark-on-Trent/Grantham System.

This system has been planned by the Division and approved by the Board since vesting date, and main-laying work is due to commence shortly. The arrangement is shown generally in Fig. 1.

Gas is to be pumped from Nottingham (Eastcroft) through a 15-in. main which divides into two 12-in. branches at Saxondale—one for Newark and the other for Grantham in the Lincolnshire Division. Mains sizes were decided after careful surveys of the potential requirements in all areas to be supplied by the system, and it is of interest to note that the developed load will require an initial pressure of not more than 20 lb. There is therefore a substantial margin for increased capacity by stepping up the initial pressure should the developed load exceed that anticipated.

At each receiving station there is provision for metering and volumetric governing into the holders, and low pressure boosting with pressure governing at the outlet of holders.

Remote indication of (a) holder stock, (b) flow, and (c) grid pressures is to be provided with the installation, giving the operator at Nottingham a complete picture of conditions in the system. While initially control would be by telephone instruction and manual operation at the receiving station, it is intended that later this be replaced by simplified remote control equipment.

At Newark-on-Trent, in addition to the standard equipment, there is to be compressing plant for relaying gas to Southwell and Farnsfield. It is also proposed to give governed supplies from the grid at four points *en route*.

If at first sight this might appear not to conform to the best practice in that it reduces the load factor on the main, it should be borne in mind that the main has been planned to meet, by 1970, all fully developed loads in the areas served by the receiving stations, plus the developed load *en route*.

Obviously, for many years the main will be operated under capacity, and no difficulty will be experienced in keeping a constant flow into the receiving stations and meeting the variable requirements of the district governors by increasing the rate of pumping.

Two stages of development can be met in the following way. Instead of using the holders at the pumping station, the gasholders at the receiving stations could be brought into action at peak periods by cutting input and allowing the direct feeds to the district to be taken by the bulk supply main, maintaining the full capacity of the latter throughout the whole of the 24 hours. This involves increasing the capacity of the gasholders at the receiving stations, but additional storage would be required somewhere within the system. It would be more convenient to extend at the receiving stations, where scheduled land and space occupied by former gas-making plant are available, than to consider the erection of district holders *en route*. The initial pressure of the system could be stepped up to lift the capacity higher still.

Gas Storrge Capacity

During the development of any grid system such as has been outlined above, the question of gas storage capacity of necessity arises, and so far it has been assumed that adequate gasholder capacity conforming to good practice will be available at manufacturing and distributing stations.

Good practice has been somewhat loosely interpreted as effective gasholder storage capacity to enable gas manufacturing plant to be run under steady daily load over a seven-day period. In so far as the Notts. and Derby Division is concerned the average week-end day demand (two days—Saturday and Sunday) is 75% of the average week-day demand (five days—Monday to Friday inclusive) and the gasholder capacity required to accommodate a 'straight line' input can be calculated as follows:—

If A = average of five weekdays

$$\text{Average weekend day} = \frac{3A}{4}$$

$$\text{Average of seven days is therefore} \frac{5A + 2\left(\frac{3A}{4}\right)}{7}$$

$$= \frac{13A}{14} \text{ (make)}$$

$$\therefore \text{ gasholder capacity required is } \frac{5A}{14}$$

This is, of course, in addition to storage capacity required to meet hourly variations throughout any one day—plus a safe minimum below which stocks should not normally be taken.

In view of the high capital cost of gasholders and the incidence of the five-day working week which has tended to increase the gasholder capacity required, in some instances it might be worthwhile considering the installation of plant of sufficient capacity to meet the average week-day demand, and to cut down the output from the plant to suit the week-end day demand.

This practice would be uneconomical for coal gas plant, with the exception that in some instances where coke is in great demand, gas-making plant could be installed for either producer gas or coal gas firing, and could be changed over during the week-end days to coal gas firing.

If, however, the difference between week-end day load and week-day load is being met by C.W.G., there would be no difficulty in standing during the week-end days.

Regardless of the proportion of week-end day to week-day it can be shown that additional plant to meet the latter is one-fifth of the holder capacity required to store week-end gas. Capital charges for holders—not capital cost—must therefore be one-fifth of those for gas-making plant in order to justify holders, and the matter is being closely investigated.

The question of holder capacity to be provided for undertakings taking bulk supplies fed by a single mains system is also under review. As a broad principle it would seem that as such an undertaking should have, at any time, the immediate next 12 hours requirements as a minimum stock. No ready formula is available for determining holder capacity, and each case has to be worked from first principles.

Twelve hours immediate demand without input is specified

to meet possible interruption of supply and provide sufficient time for emergency repairs on a grid main to be carried out. In the case of holders situated at a manufacturing station connected to the grid, or at a holder station fed by a ring main system, the minimum normal effective capacity could be reduced to eight hours immediate requirements at any time.

There is another factor to be taken into account when determining the effective capacity of gasholders, the filling of which is controlled by an automatically operated valve which isolates the holder from the supplying main at some pre-determined point. An allowance should be made for isolation to take effect at such a point that the holder can continue to rise as a result of changes in temperature, so that the maximum amount of expansion likely to take place is catered for without the holder becoming unsealed. It is felt that a possible rise in temperature of 60° F. could be experienced as a result of sun following a frosty night; expansion would be of the order of 13%, and an allowance of up to this figure should be made above the actual capacity required to meet demand.

IV. CONSEQUENTIAL EFFECTS OF INTEGRATION

As a result of integration of undertakings to form a grid system complications arise from the legal aspect, particularly with regard to gas testing in compliance with the Gas Act.

There is at present an official gas testing station for each statutory undertaking in the Division, and gas testing is carried out in accordance with prescriptions made by the Gas Referees or their successors, the Ministry of Fuel and Power. While at the time it was made the prescription dealt with the position at each undertaking in a satisfactory manner, the rapid integration of undertakings, involving transfer of gas between one distribution system and another with the added complication of direct supplies to districts from coke oven gas mains *en route* to works, has resulted, in the case of an undertaking receiving a bulk supply from another undertaking, in testing the same gas twice, and in the case of coke oven gas supplied to consumers *en route*, the distribution of gas which has not been tested at all.

Considerations here are very involved, but a solution would appear to be to institute the testing of gas for calorific value and purity at the source of manufacture—that is, input to the grid. The testing of gas for pressure would, of course, remain one for local consideration as at present.

Accepting this basis the ultimate number of test points for the Notts. and Derby Division when the present programme for plant extensions and centralising of manufacturing stations is completed would amount to four at gasworks and five at coke oven plants—nine points in all covering the distribution of daily volumes up to 70 mill. cu.ft., as compared with 28 testing stations as at present.

Economic

Financial consequences of physical alterations are always considered, and finally, consistent with statutory requirements, the financial aspect is the deciding factor. For example, before taking the decision to shut down a works and to give a bulk supply in lieu, the cost of manufacturing gas locally with a reconstructed plant is compared with the cost of gas to be made at the supplying station plus the cost of transmission.

Transmission costs have been carefully considered in relation to the most economical size of main consistent with power requirements for compression. Several combinations are determined, and the result of each expressed per therm of gas transmitted. In cases of fractional differences the leaning has been to the larger size of main in order to provide some reserve of capacity for unforeseen development.

The actual cost of the gas delivered is of prime importance to receiving undertakings, as the present policy is, except in the case of very small undertakings in close proximity to larger neighbours, to retain the identity of the undertaking for accounting purposes.

Economic problems arising from the diversion of gas from one undertaking to another arise as follows:

1. Coke oven gas to which one undertaking A is entitled under a contract may be diverted to assist a second undertaking B, while A is called upon to manufacture C.W.G. to make good the deficiency. Due to the difference in cost between coke oven gas and C.W.G., the financial results are seriously affected to the detriment of A and the advantage of B.
2. Taking the same example as above, the supplier of coke oven gas might be obtaining a better price from A than from B, and some adjustment would be necessary in equity to the Board as purchasers.

Occasional instances of conditions (1) and (2) above can be dealt with by A debiting B with the difference between the cost of manufacturing C.W.G. and the cost of the coke oven gas; however, where diversions are taking place in a number of places with daily alterations such as already occur and will occur to an even greater extent when the system is completely integrated, some modifications to facilitate accounting must inevitably take place.

A further difficulty occurs in that undertakings cannot accurately prepare a budget or exercise budgetary control when the source of their gas supplies is taken out of their hands.

Grid Accountancy

To provide a solution for these difficulties it is suggested that for all the undertakings at present interlinked, and others which subsequently may be, to form a centrally-controlled grid, a uniform charge per therm for gas made and bought should be debited in the accounts of the constituent undertakings.

This would necessitate the formation of a Notts. and Derby Gas Grid established as a separate accounting unit similar to the South Yorkshire Gas Grid. The undertakings manufacturing gas within the grid would sell all the gas made to the grid at net cost into holder, including appropriate capital charges, and all gas purchased from coke ovens would be debited direct to the grid account without regard to the point of delivery. On the other hand, the component undertakings would purchase all their requirements of gas from the grid, and would be debited at the average price of all gas purchased whether this were manufactured at undertakings or at coke oven plants owned independently of the Board.

Thus in the same way that physical control of the grid is exercised by the engineer at divisional headquarters, the accounting for the gas grid would be carried out at the divisional accountant's office in close co-operation with the technical side.

The advantages to be expected from such a system are that each manufacturing unit would submit a manufacturing budget to enable the divisional accountant, in conjunction with estimates of coke oven gas supplies, to prepare a gas grid budget and to arrive at a provisional price for the sale of gas to the undertakings. From this provisional price of gas the undertakings would prepare their revenue account forecasts.

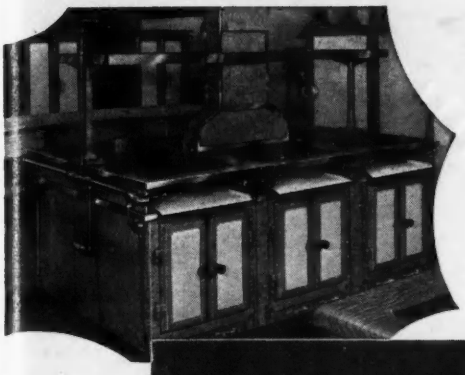
With the exception of those undertakings manufacturing, the accounts would show simply on the debit side gas purchased from the grid plus all charges in connection with distribution and sales, and on the credit side the receipts from consumers. Manufacturing undertakings would show in a separate account the net cost of manufacture balanced by receipts from sales to the grid.

It is felt that the operation of a gas grid account on a divisional basis would greatly facilitate the introduction of standard charges for gas sold in all areas of the division.

DISCUSSION

Mr. **K. L. Pearce** (the Chairman), in opening the discussion, said that Mr. Elliott's paper formed a subject of fascinating interest, dealing as it did with the handling of an extensive grid system and the developments taking place in the Notts. and Derby. Division with a view to giving greater flexibility in gas supply.

Mr. **H. B. Taylor** (Divisional Manager, Nottingham Sub-



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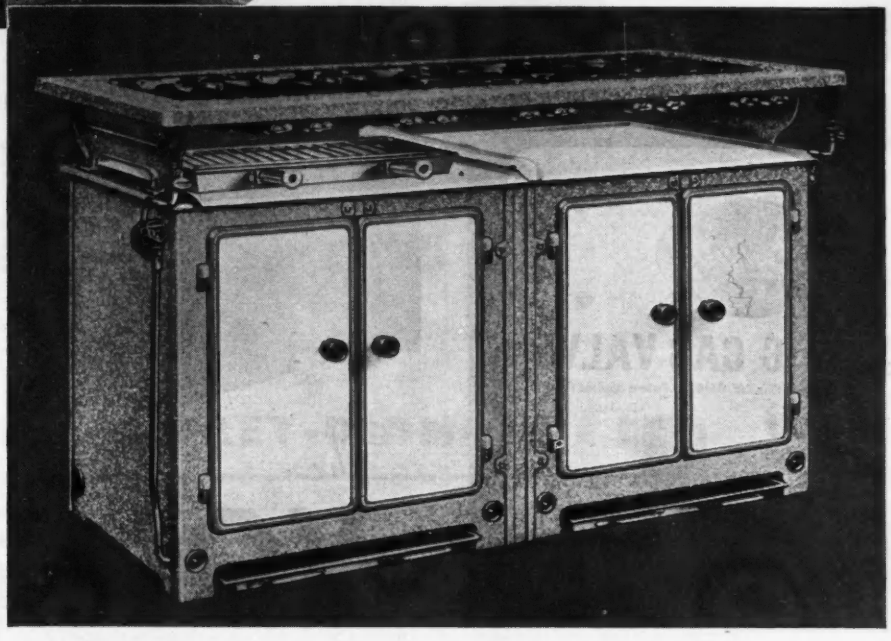

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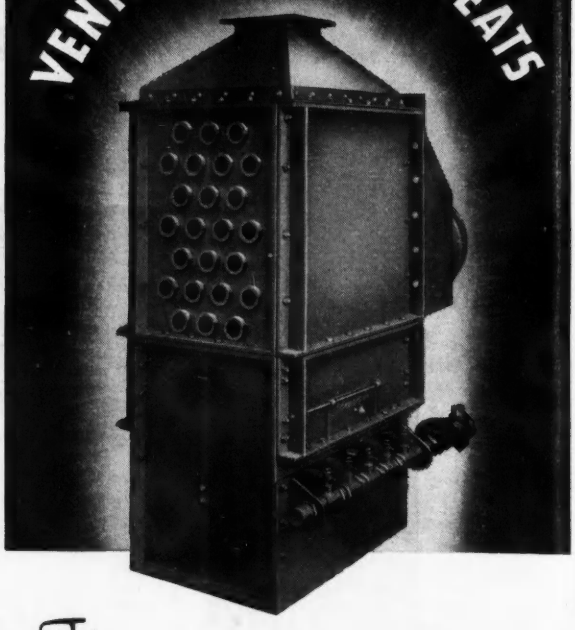

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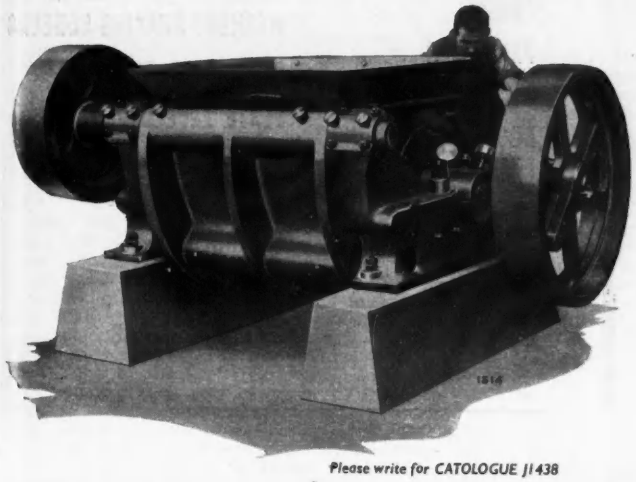

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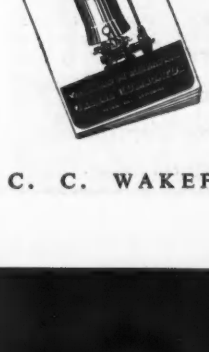

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Division, East Midlands Gas Board) said he was struck by the lack of co-ordination in the past. Derby had its own system; so too had Long Eaton, Nottingham, Chesterfield, and others. True, these were connected in most cases, but they neither comprised a grid nor were they operated as one. Mr. Elliott had indeed a tangle to unravel. Each of these local mains, while primarily intended to convey bulk supplies, passed through areas of deficient district pressure and were copiously bled *en route*. Indeed, the trunk mains in the Nottingham Sub-Division were now rather to be considered district reinforcement mains, for they were inextricably intermingled with the local supply mains, the flow frequently being reversed. This presumably was the reason why these large-bore existing mains were in many cases duplicated by proposed grid mains. He wondered if Mr. Elliott had considered the possibility of now rectifying the mistakes of the past, for with little additional expense it should be possible to allow many of these old bulk supply mains to pass to local feeder main duties, since it would appear that a super grid was in any event to be superimposed.

Lack of Basic Data

He had found the paper difficult to approach because of the lack of basic data—*e.g.*, the initial and future loads, flows, and pressures. What future loads did Mr. Elliott cater for and what quantities of gas did he expect from the various sources of supply? Had Mr. Elliott considered the supply of coke about the Division as well as gas? If 80% of the gas consumers in the Nottingham Sub-Division were each to take two tons of coke per annum (less than the quantity envisaged by the Simon Committee) some 300,000 tons would be required each year of which 100,000 tons would be produced in Nottingham—the balance of 200,000 tons having to be imported from near Chesterfield or Derby at a cost of over £100,000 a year in haulage alone. These were big figures but ones which must be faced if smoke prevention and the potential coke market were taken seriously. This suggested that the centre of gravity of the manufacturing stations might be too far north, but without the necessary data it was not possible to follow up this line of thought. He noticed that Mr. Elliott contemplated the coke oven plants working at constant load. Had he considered the reverse? Mr. Taylor thought he would find that the overall economics were improved if the retort gas plants were on constant load, the coke oven plants taking up the variations in demand, with C.W.G. plants for emergencies. He feared this might be of academic interest only while the plants were under different control.

Mr. Taylor noted the author's proposals for remote indication of pressure, etc., followed at a later date by remote control of the receiving stations. Mr. Taylor hoped that Mr. Elliott would be quite sure that savings could be effected by such equipment before he gave them the fashionable control panels. He had yet to find a case where genuine savings could be shown. The difficulty lay in the need for an attendant at each station (for cleaning, coke sales, complaints, etc.), and such a man might just as well telephone control, thus obviating expensive equipment and line charges. Mr. Elliott faced up to the problem of gas testing, and his proposals were to be commended. They were, however, not the complete solution. Their service must be imperfect while the present bad practice of local reinforcement from trunk mains continued. Much of this gas was never mixed in a holder, and coke oven gas might vary by 20 B.Th.U. and 25% in specific gravity from local manufactured gas. They would have no proper service to offer until grid mains supplied the holder stations only, except in the case of isolated country villages.

The suggestions under 'Grid Accounting' were again full of commonsense and had been normal practice for many years in Yorkshire. When their accounts reached this point might they remember that the receiving undertaking should buy its bulk supplies under a tariff framed to facilitate industrial sales having regard to their cost-reducing influence on bulk distribution.

Mr. **F. L. Atkin** (Chief Distribution Engineer, West Midlands Gas Board) said he appreciated that the area under discussion was what one might term a 'coke oven gas area,' and as such the problems were somewhat different from those existing in areas which depended for their supplies on normal gas-making stations. Furthermore, the area mentioned consisted of towns and townships separated by open spaces, and it might be interesting to compare this with conditions in the conurbation of the Black Country and Birmingham. This area was roughly oval in shape, the major axis being about 20 miles and the minor axis 14 miles. Within that area were 16 undertakings whose annual output of gas was some two-and-a-half times the amount distributed in the Notts. and Derby. Division. Facilities for the interchange of gas supplies had existed for a number of years, and it was the West Midland Board's policy to continue the interlocking of the undertakings for many well-known reasons, including that of enabling surplus plant capacity required for repairs to be reduced to a minimum. Within the conurbation he had already mentioned it was not always the best policy to link up the actual manufacturing stations, as the coterminous areas existing between the undertakings could be used as 'transfer areas' by suitable adjustment of pressures as between one works and another. This method was familiar to the Birmingham engineers when balancing the outputs as between one works and another. The present demand for gas within that conurbation was such that practically no surplus manufacturing plant existed, and the closing down of the smaller units could only be achieved when further manufacturing plant was available.

In the absence of more detail, Mr. Atkin assumed that the author's method of determining the ultimate requirements of the areas over a number of years was similar to methods which had been adopted by the Central Planning Committee of the West Midlands; but it had been found that to some extent the forecasts must be regarded as somewhat fluid. The experience of the last few months, coupled with the rearmament drive, had emphasised that point, and he suggested, therefore, that Mr. Elliott should regard forecasts of future demands with a certain degree of flexibility, though one must admit that a target was necessary.

Mr. Atkin said he would like a little more information on Mr. Elliott's statement that maximum and minimum days had been taken as one-seventh of the weekly figure. He suggested that this was too low, and he had in fact noticed that the author, when dealing with holder storage, had mentioned a figure (with which the speaker roughly agreed) that Saturdays and Sundays amounted to 75% of the average week-day demand. Referring to mains linkage, he would like to ask, in considering the economics of the transmission of gas on the established principles of interest on capital, pumping charges, etc., whether Mr. Elliott had arrived at any optimum figure beyond which it would be more economical to consider the erection of a new works. With regard to pressures, he noted that a figure of 20 lb. was mentioned as an initial pressure for a grid mains system with a margin above this pressure for increasing the capacity of the system. He considered this figure far too high, bearing in mind the limitations of cast-iron pipes, the increased pumping charges, and a few other incidental items such as leakages and loss of C.V. due to compression. Without anticipating the autumn research meeting of the Institution, he would like to mention that the Pipes Committee (of which he was a member) were putting forward a Code of Practice for the testing of high-pressure mains, and that Code might indicate a revision of ideas concerning suitable pressures.

In regard to gas storage capacity, from certain investigations which he had carried out he considered that if a works were to be closed down and a supply given at a constant rate throughout the 24 hours from a grid main, holder capacity equal to half the maximum winter's day would be satisfactory. Finally, Mr. Atkin registered a protest against the increasing use of the words 'gas grid.' He suggested they should not attempt to copy other industries but use the term 'interlinking' or 'integration' which, as a matter of fact, he noticed the author mostly used in his paper. One definition of a grid was an instrument of torture!

Mr. **W. H. Blundstone** (Hereford) said there was a limit to the length of main through which it was economical to pump gas.

Mr. **A. D. Hill** (Banbury) queried the reliability of coke oven gas supplies and also asked whether any troubles had been experienced due to ground subsidence in mining areas causing fracture of the feeder mains.

The Author's Reply

Mr. **Elliott,** replying to the discussion, observed that the lack of control prior to vesting date was explained by clashes of personalities and to individual ownerships. Some systems were, of course, previously under one control to a limited extent. In regard to the giving of supplies *en route*, consideration must be given to statutory requirements as well as to economics, for where a system was subject to indiscriminate

bleeding *en route* cases must arise when the gas did not conform closely to specification. They were, however, developing a system of control whereby the gas could be kept very closely indeed to specification, and the 25% variation mentioned by Mr. Taylor was rarely experienced. They could rely on better performance by coke oven plants, and future agreements should be on a much more stringent basis to ensure that the supply conformed to statutory requirements as regards calorific value, specific gravity, naphthalene, oxygen, etc. Gas testing was an acute problem in circumstances like these.

In planning the Nottingham/Newark-on-Trent/Grantham main consideration had been given to the potential consumers within tapping distance of the main, to new housing schemes, and to industrial loads. If they reached the capacity of the system by 1970 they would have done extremely well, as it was two-and-a-half times the present load.

The initial pressure at Eastcroft works would cover all anticipated development, and if their calculations were wrong it could go up to 25 lb. to give a little extra capacity. Mr. Elliott admitted that he was not absolutely convinced that remote control could be made to pay. It had not yet been installed in any of their schemes. His ultimate conception was that they would have a grid into which all manufacturing stations would pump their output and from which all distributing undertakings would draw supplies into their holders. He was not saying there would not be connections into existing mains *en route*, but only under strict control.

Some undertakings were just being kept going temporarily, and all extensions were taking place at the principal manufacturing stations. The commercial staff provided the technical staff with the estimates of output. The minimum daily demand seemed to be agreeing closely with the estimates, but the maximum was quite out of proportion, with the result that the 10-year estimate would need modifying by 10%, in addition to a modification to take in Grantham. With regard to the maximum day determination, the idea of taking one-seventh of the maximum weekly demand was to compute the daily demand; but the maximum of any one day might be one-sixth or less of the maximum week. They were entitled, however, to adopt the figure of one-seventh to meet variations in output. The figure of 75% of the average week-day demand was not laid down for indiscriminate use but happened to be the figure in that particular area. The provision of C.W.G. plant of 1 mill. cu.ft. per day would obviate spending money on gasholders to take up the week-end demand.

They used cast-iron pipes with mechanical joints, which were tested up to 40 lb. pressure. The highest pressure would normally be 20 lb. with a margin up to 25 lb. Mr. Atkin had suggested that for the sake of simplicity holder capacity equal to half the maximum winter's day would be satisfactory. Mr. Elliott considered, however, that his own 12 hours would be more than 50% of the maximum day. Mr. Hill had referred to the reliability of coke oven gas supplies. It was true that many of the old contracts were unsatisfactory. They had experienced very little trouble from subsidence.

Mr. **A. Tran** (Divisional General Manager, Northern Division of the Southern Gas Board), the Senior Vice-Chairman, proposed a vote of thanks to Mr. Elliott. The subject of integration was one, he said, which was engaging the attention of the gas industry throughout the whole country today. There was no more complex a subject facing them, and this paper would be extremely valuable to engineers in planning along similar lines. They were sinking a tremendous amount of money in these projects, and it was vital that the sizes of their mains should be right. Integration appealed to him greatly, and they were undertaking some of this work in the Southern Gas Board's area. There were at the moment 63 producing undertakings in that area, and it was hoped eventually to reduce them to nine or 10.

Mr. **J. E. Wakeford** (Birmingham), the Junior Vice-Chairman, seconded the vote, and Mr. **Elliott** replied.

PUBLICATIONS RECEIVED

We have received from the British Welding Research Association, a copy of *Photographic Aspects of the Radiography of Welded High Pressure Vessels*. By L. Mullins, Ph.D., M.Sc., F.Inst.P. (price 2s.). The booklet comprises a statement prepared for the FE.6 Committee of the Association on Radiography of Pressure Vessels and its purpose is to review the desirable characteristics in the sensitive materials used and to set out recommendations on their handling and processing. The paper covers choice of photographic materials; handling and processing X-ray films; confusing shadows in weld radiographs; formulae of solutions for processing X-ray films, etc., and is illustrated by 23 plates and diagrams.

In the coal, gas, and electricity industries some 700 persons, exclusive of the membership of local committees and secretarial and clerical staffs, are involved in the responsibilities for the representation of consumers conferred under the various nationalisation Acts on consumers' councils, consultative councils, and advisory councils. An attempt, a little premature perhaps, to assess the work of these new organisations is made by A. M. de Neuman in *Consumers' Representation in the Public Sector of Industry*, published by Students' Bookshops, Ltd., Cambridge (3s.). The author says that the general impression is that as yet the consultative councils have carried out little constructive work. They have not been in existence long enough for anyone to be sure of the directions in which they will move or be driven; nor has the first enthusiasm abated. Their real test is still to come.

The Association of British Chemical Manufacturers has issued Supplement No. 1 to its *Model Safety Rules for Use in Chemical Works, Part I*, the third edition of which was published in 1947. It contains changes made necessary by the Factories Act, 1948, together with a few minor changes and additions as the result of experience in use. The amendments are printed on separate gummed slips to allow of insertion in the blank pages provided for that purpose in the existing rules. Copies of the supplement are being sent gratis to known purchasers of theoriginal edition of Part I. The amendments will be incorporated in due course in future editions. Copies of the third edition of Part I, including a copy of the supplement, are available from 166, Piccadilly, W.1, at 7s. 6d. post free, cash with order.

The law relating to patents has been amended and a new Patents Act came into force at the beginning of the year. For many years Kings Patent Agency, Ltd., of 146a, Queen Victoria Street, E.C.4, have published a booklet on *Patents and Trade Marks*, and in view of the changes in the law, they have issued an entirely new edition of the section relating to patents and at the same time divided the section on trade marks into a separate booklet. Neither booklet is in the nature of a text book on the subject in question. The Patents booklet is simply intended to give a concise and a clear explanation of the subject and the normal progress of an application from filing up to acceptance. Similarly, the Trade Marks booklet deals mainly with the type of mark which can be registered, and the normal progress of an application.

A new booklet entitled *Telcon Bronze Safety Tools*, has been published by the Telegraph Construction & Maintenance Co., Ltd., of 22, Old Broad Street, E.C.2. Telcon bronze is a copper base alloy containing 2% beryllium, and tools made of this material are not only exceptionally strong and durable but are also resistant to the destructive action of a number of corrosive agents and will retain their hardness up to temperatures of 200° C. The booklet covers many standard ranges of hand tools with specifications and illustrations, while the firm are prepared to quote for special tools for any new or abnormal application.

We have received a copy of the third edition of the *Directory of Coventry Manufacturers*, published by the City Council. This useful and comprehensive reference book is divided into two main sections—a list of manufacturers and their products and a cross-index of products with the names of the various manufacturers. A further section is devoted to a series of very fine photographic illustrations of typical factories in the area. A considerable weight of advertisements (properly indexed at the back) provides further useful information on a variety of products, while the introduction clearly explains the four main types of industrial development which are being planned in this progressive city, with the special siting requirements appropriate to each. A notable comment in the introduction is that it will be the constant aim of the Council to increase the diversification of the existing industrial structure as a safeguard against possible periods of depression in the staple industry of the City.'

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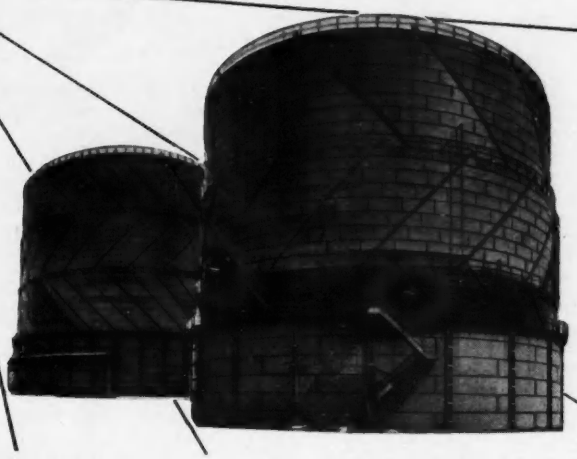

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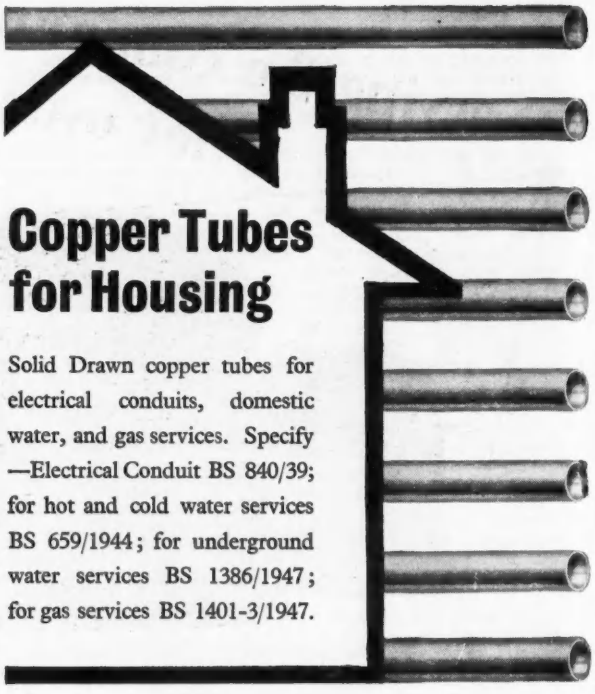

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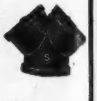

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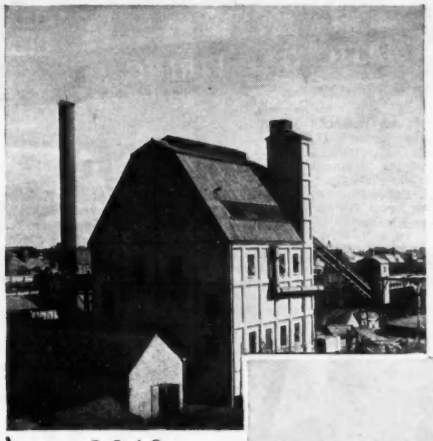

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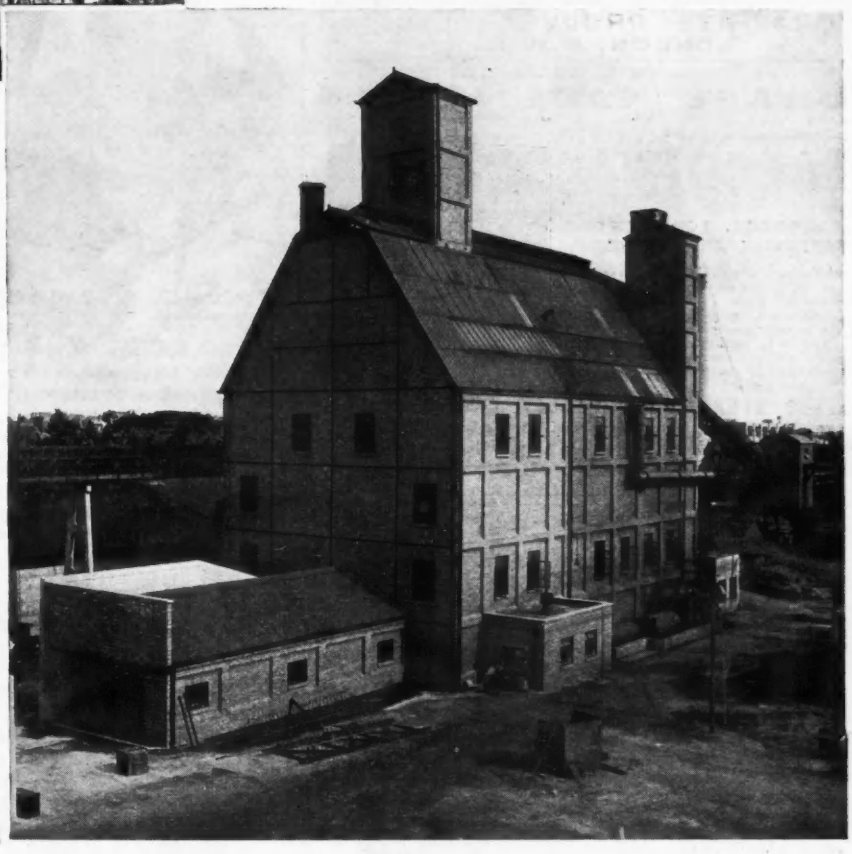

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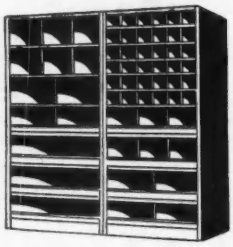

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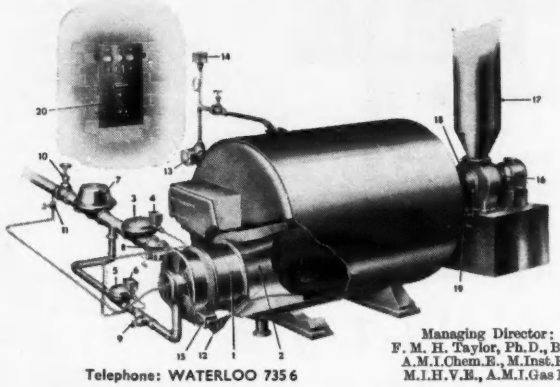

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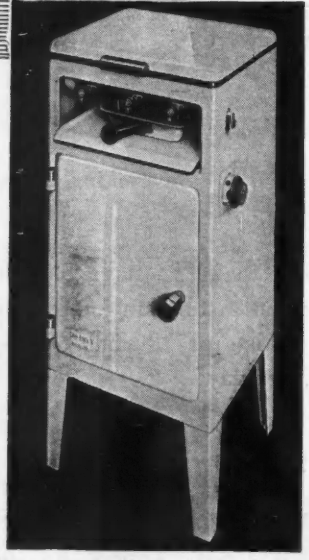

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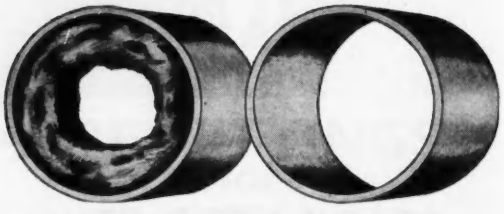

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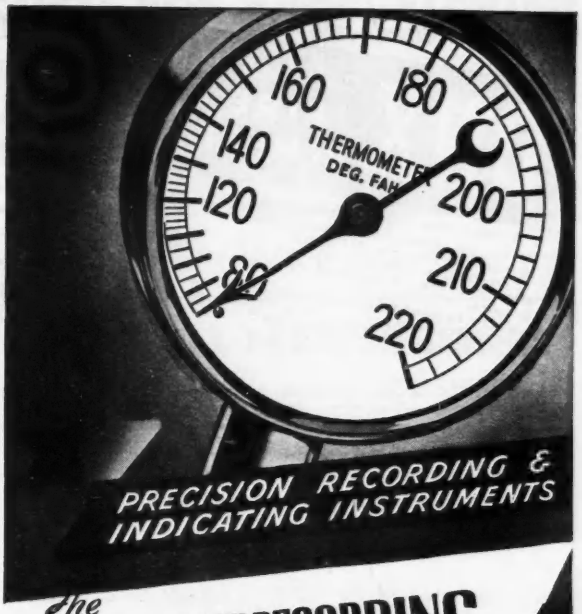

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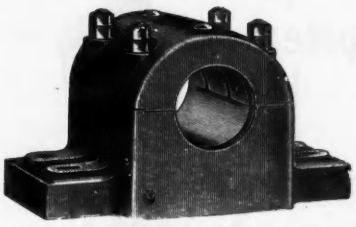

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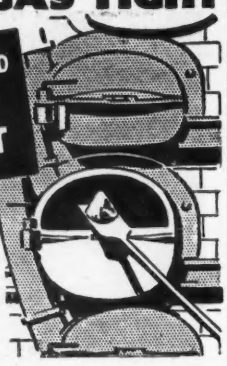

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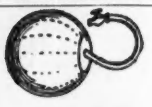

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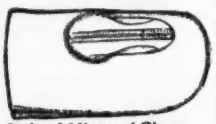

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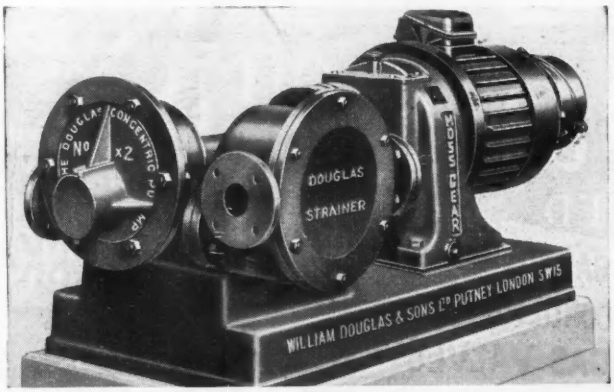

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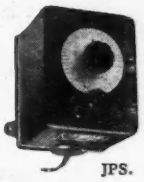

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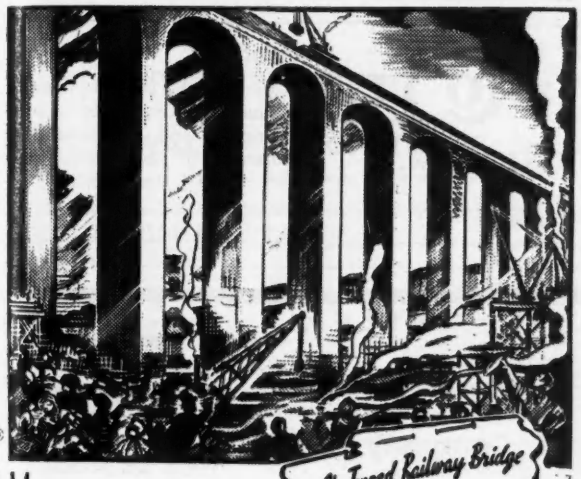
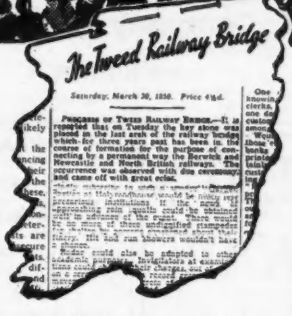


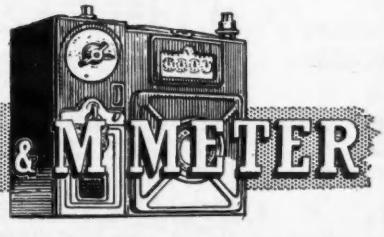

The Tweed Railway Bridge

Saturday, March 30, 1850. Price 4½d.

PROGRESS OF TWEED RAILWAY BRIDGE.—It is reported that on Tuesday the key stone was placed in the last arch of the railway bridge which for three years past has been in the course of formation for the purpose of connecting by a permanent way the Berwick and Newcastle and North British railways. The occurrence was observed with due ceremony and came off with great eclat.

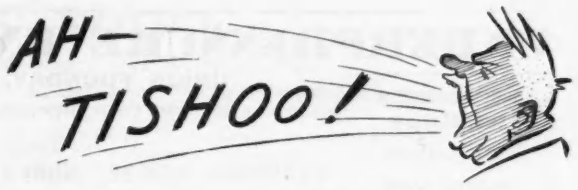
Excerpt from "THE SCOTSMAN," Saturday, March 30, 1850.

100 YEARS may be but a fleeting moment in the history of mankind, but it is a long span in the history of a Company. During these past 100 years the firm of Alder & Mackay has met and bridged many obstacles. Sometimes the bridging has been done over the human valleys of death and despair in peace and war—at other times over the mountainous realms of scientific research. **To-day the keystone of this 100 Years' bridge is there for all to see —the integrity of the Measure of Accuracy.**



CELEBRATING 100 YEARS' SERVICE TO THE GAS INDUSTRY

ALDER & MACKAY, LTD., *Gas Meter Manufacturers,*
EDINBURGH, BRADFORD, MANCHESTER, LONDON, BELFAST and CORK



Coughs and colds spread like wildfire and are a serious cause of ABSENTEEISM.

We can help you to combat and confine infection with our preparations, some of which are listed below.

Send for particulars and prices.

★ SYRUP PINI. CO. CUM KREOSOTE. This is very palatable, has a powerful antiseptic effect against the persistent cough, and diminishes the risk of infection spreading.

★ "QUINCABEL" FOR COLDS. Assists in arresting the development of a cold or in its dispersement.

★ "G.P." GERMICIDE AND ANTISEPTIC. An essential as a general infection combatant.

★ "AMARATONE" TONIC. A first-class tonic when vitality is low, for building up resistance to infection.

★ A.P.C. TABLETS. (Aspirin, Phenacetin, Caffein). A splendid prophylactic in cases of pains and colds.

★ "SANOID" ANTISEPTIC SPRAYING SOLUTION. A pleasant and effective anti-infection spraying solution.

★ IODISED THROAT TABLETS. An effective means of disinfecting the mouth and throat and reducing infection spreading.

CUXSON, GERRARD & CO. LTD.
SPECIALISTS IN FIRST AID
OLDBURY, BIRMINGHAM Phone Broadwell 1355

TUBELA Hydraulic Pipe Bending Machines

Following the success of our copper tube bending machines our range of Hydraulic Pipe Benders has been produced to deal with all classes of heavy water, gas or steam barrel from ⅛" - 3" diameter. *(Model H.1 illustrated).* A special feature is our patented attachment enabling 180° bends to be effected rapidly and with ease. Model H.2 TUBELA Hydraulic Bender, the latest in our range is designed to bend heavy gauge pipes from ½" - 1¼" only and is very competitive in price. These machines are modern in every sense of the word.

Model H.1 Hydraulic Bender

Please write for full details

LAWLER, AYERS & CO. LTD.
54 OLD BROAD STREET, LONDON, E.C.2
Tel. LONDON WALL 5101 (3 lines)

UNDERPRESSURE ENGINEERING CO., LTD.

UNDERPRESSURE CONNECTIONS
SPLIT COLLARS
SOCKET CLIPS

UNION FOUNDRY, MANSFIELD, NOTTS.
ALL TYPES OF DISTRIBUTION MATERIAL IN STOCK

Service Enquiries:
STAFFORD HOUSE, NORFOLK STREET, STRAND, W.C.2.
'Phone: MANSFIELD 1256. 'Phone: TEMPLE BAR 9910.
'Grams: CASTINGS, MANSFIELD. 'Grams: WASHER, ESTRAND, LONDON.

CENTRAL ACTION DRILL STANDS
SERVICE CLEANSERS
TOOLS, ETC.

ALEXANDER WRIGHT & CO LTD

1, Westminster Palace Gardens, WESTMINSTER, S.W.1

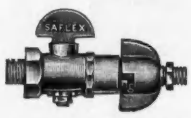
INSTRUMENTS for Works and Laboratory.

GAUGES:
U-tube; Double column; Single-column; Inclined-tube for laboratory and meter-testing. Batteries and in combination with "D-B" Recorders and/or Indicators.

Telephone: ASTON CROSS 2451
Telegrams: EMPIRE PHONE BIRMINGHAM

OUR IMPROVED PATENT "SAFLEX" PLUG-IN COCK
TO SUIT ALL PORTABLE GAS APPLIANCES
WASH BOILERS &c.

Wm. WHITEHOUSE and Company Ltd.
Manufacturers of Gas Main Cocks, Plug-in Cocks, etc.
Empire Works, Brueton Street . . . . BIRMINGHAM 4



MADE ALSO FOR WALL OR FLOOR CONNECTION

OXIDE

DUTCH AND DANISH BOG ORE SPECIALLY ACTIVATED OXIDE OF IRON

Oxide supplied on loan or sale outright.
Highest prices paid for Spent Oxide.

Send your enquiries to

GAS PURIFICATION & CHEMICAL COMPANY LIMITED
ESTABLISHED 1873

PALMERSTON HOUSE, OLD BROAD STREET, LONDON, E.C.2.

Telegrams: "Purification, Stock, London." Telephone: London Wall 5077

"KLEENOFF"

THE COOKER CLEANER

Tins for Sale to Consumers. In Bulk for Works Use

OXIDE OF IRON.

BALE & CHURCH, LTD.
33, ST. MARY AT HILL, LONDON, E.C.3.

Telephone: Mansion House 1156. Telegrams: "Balefire, London."

BROADBENT'S SLAG WOOL

THE WORLD'S FINEST
FIRE-PROOF NON-CONDUCTING
material for
GAS PLANT
of every description

J.C. BROADBENT & Co., LTD.
SLAG WOOL WORKS, REDCAR, YORKS. T.N. Redcar 16
64/5, LONDON WALL, LONDON, E.C.2. T.N. City 4613

The
LIMIT OF EFFICIENCY
CAN BE REACHED
by the use of
LUX
GAS PURIFYING MATERIAL

Sole Importers:
HARRISONS (London) LIMITED
66, Mark Lane, LONDON, E.C.3
Telegrams: Birchrock, London Telephone: ROYal 3120

PLANT FOR SALE

PHONE 98 STAINES.

FOR SALE. MITCHELL ELECTRICAL SLAT CONVEYOR, 80 ft. by 30 in. wide. Works at various angles.

VERTICAL CROSSTUBE BOILERS, 13 ft. 6 in. by 6 ft., 60 lb. working pressure; 11 ft. 6 in. by 4 ft. 6 in., 120 lb. working pressure; and 7 ft. 6 in. by 3 ft. 6 in., also 7 ft. by 3 ft. 3 in., both 100 lb. working pressure.

HORIZONTAL and VERTICAL STEAM ENGINES, 30-350 h.p.

Robey PORTABLE LOCO TYPE BOILER, 1,000 lb. evaporation, 120 lb. working pressure.

SECTIONAL, RECTANGULAR and CYLINDRICAL TANKS up to 16,000 gal.

HARRY H. GARDAM & Co., LTD.

CONNELL OF COATBRIDGE OFFER THE FOLLOWING FOR IMMEDIATE DISPOSAL

0-6-2 standard gauge, side tank steam LOCOMOTIVE by the North Stafford Railway Co., Ltd., Crewe. Cylinders 18½ in. diameter by 26 in. stroke. Boiler pressure 175 lb. Tractive effort 22,060 lb.

0-4-0 standard gauge, saddle tank steam LOCOMOTIVE by Andrew Barclay, Sons & Co., Ltd., Kilmarnock. Cylinders 12 in. bore by 22 in. stroke. Boiler pressure 125 lb. Copper firebox. Brass tubes. Ready for immediate service.

0-6-0 standard gauge, side tank steam LOCOMOTIVE by Kerr Stuart & Co. Cylinders 12 in. diameter by 20 in. stroke. Boiler pressure 160 lb.

0-4-0 standard gauge, side tank steam LOCOMOTIVE by Andrew Barclay, Sons & Co., Ltd., Kilmarnock. Cylinders 10 in. diameter by 18 in. stroke. Boiler pressure 160 lb. Tractive effort 6,750 lb.

0-4-0 standard gauge, saddle tank steam LOCOMOTIVE by the N.B. Loco Co., Glasgow. Cylinders 12 in. diameter by 20 in. stroke. Boiler pressure 140 lb.

0-4-0 36 in. gauge, saddle tank steam LOCOMOTIVE by W. G. Bagnall & Co., Ltd. Cylinders 10 in. diameter by 16 in. stroke. Boiler pressure 170 lb. Two available.

2 ft. gauge Diesel LOCOMOTIVE by Ruston & Hornsby, Ltd. 16/20 h.p. Fitted with two cylinder Lister Diesel engine.

2 ft. gauge Diesel LOCOMOTIVE by Simplex. 28 h.p. Fitted with two cylinder Dorman Riccardo Diesel engine. Seven available.

Full particulars from: JAMES N. CONNELL, LTD., PHOENIX AND CLIFTON WORKS, COATBRIDGE, SCOTLAND. Telephone Coatbridge 1121 (5 lines).

PUBLISHERS' NOTICE

The "Gas Journal" is published every Wednesday, price 1/-; by post 1/2d.

Subscription Rates: Home and Empire:- 45/- per annum; Foreign:- 52/- per annum. (Both payable in advance.) A copy of the "Gas Journal" Calendar & Directory is presented each year to continuous subscribers.

Classified Advertisements: All small classified advertisements are charged at 1/6 per line (approx. 7 words) - minimum charge 7/6. A Box Number address occupies 2 lines, and a further 6d. is charged towards cost of postage on replies. Copy must be received by first post on Monday to ensure insertion in that week's Journal.

Displayed Advertisements: Rates obtainable on application to the Business Manager. Change of copy for displayed spaces must be received 14 days prior to publication if proofs are required. Type area of inside pages 10" deep x 7" wide; block screen 120.

BUSINESS MANAGER: S. T. CULLEN

MIDLANDS OFFICE: 10, Union Street, Birmingham.

NORTHERN MANAGER: W. Q. Foster, 33, St. Helens Road, Harrogate. 'Phone: Harrogate 84291.

WALTER KING, LTD., 11, Bolt Court, Fleet Street, London, E.C.4.

Telephone: CENtral 2236-7. Telegrams: Gasking, Fleet, London.

APPOINTMENTS WANTED

QUALIFIED ACCOUNTANT - SECRETARY, over 20 years at headquarters of gas industry, and with public works contractors, seeks responsible position. Replies to No. 9936, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

APPOINTMENTS VACANT

MECHANICAL DRAUGHTSMAN experienced in design and detailing of coal and coke handling plants required in London office of gas engineering contractors. Permanent position with pension scheme. Replies to No. 9932, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

INSTRUMENT ENGINEER, preferably under 35, required by a prominent firm manufacturing heavy chemicals in the Midlands to supervise the installation, maintenance and development of control instruments. Previous experience with flow control, temperature, pressure, &c., instruments essential.

Salary according to qualifications and experience. Superannuation scheme.

No. 9934, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

NORTH EASTERN GAS BOARD

HULL GROUP.

APPLICATIONS are invited for the position of DISTRIBUTION AND SALES SUPERINTENDENT in the Bridlington District.

The commencing salary will be within the range of £490 to £570 per annum, according to experience and qualifications. A house can be made available at a rental.

Applications, giving full particulars of training, experience and qualifications, should be forwarded to the Group General Manager, Hull Group, Bankside Works, Sculcoates, Hull, not later than Monday, November 27, 1950.

J. C. GARDNER,
Secretary.

Bridge Street,
Leeds, 2.

EASTERN GAS BOARD

IPSWICH DIVISION.

ASSISTANT WORKS MANAGER.

APPLICATIONS are invited from suitably qualified persons for the position of ASSISTANT WORKS MANAGER at the Ipswich Gasworks.

The position will be a responsible one and experience of maintenance and construction as well as of general administration will be an advantage.

This works has an output of about 6½ mill. per day at present and the plant consists of continuous vertical retorts and C.W. gas plant.

The salary will be in Grade II of the A.P.T. Scale, Provincial 'A.'

Applications, giving details of education, training and experience, together with the names of two referees, should be sent to the undersigned by November 24, 1950.

W. J. COLLINS GARRARD, A.M.I.C.E.,
General Manager.

Ipswich Division,
Eastern Gas Board,
Carr Street,
Ipswich,
Suffolk.

EASTERN GAS BOARD

IPSWICH DIVISION.

COLCHESTER AND CLACTON GROUP.
GROUP ACCOUNTANT.

APPLICATIONS are invited for the above position from suitably qualified accountants. The selected candidate who will be responsible to the Divisional Accountant for the accountancy organisation of the seven districts comprising the group, should be conversant with modern financial and cost accounting methods, and should have good organising ability.

The salary will be in accordance with A.P.T. XII, Provincial 'A'—£645–£770 per annum, and the commencing salary will be according to experience.

Applications, stating age and full particulars of qualifications, should be sent to the undersigned to be received not later than November 24, 1950.

W. J. COLLINS GARRARD, A.M.I.C.E.,
General Manager.

Ipswich Division,
Eastern Gas Board,
Carr Street,
Ipswich,
Suffolk.

GAS COUNCIL

APPLICATIONS are invited for the position of ASSISTANT to the Exhibitions Officer of the Gas Council.

Knowledge of industrial, commercial and domestic gas appliances and installations essential. Experience of office routine and exhibitions work would be an advantage.

Apply, giving age, experience, and salary required, to the Secretary, The Gas Council, 1, Grosvenor Place, London, S.W.1.

WEST MIDLANDS GAS BOARD

WARWICKSHIRE DIVISION.

COVENTRY DISTRICT.

SENIOR ENGINEERING DRAUGHTSMEN.

APPLICATIONS are invited for the positions of three SENIOR ENGINEERING DRAUGHTSMEN on the constructional staff at Coventry but successful candidates may be required to carry out or supervise work at any of the undertakings within the division.

Candidates must be experienced in engineering draughtsmanship, in the design and layout of gasworks construction and erection of plant and buildings and in the preparation of estimates, specifications and builders' quantities. It will be an advantage if applicants have had experience in the drawing office of a gas plant contractor.

The commencing salary will be within the range £570–£670 in accordance with Grade X of the Salary Scales of the National Joint Council for Gas Staffs.

The appointment will be subject to the provisions of such a superannuation scheme as the Board may, in due course, adopt, and the successful candidates may be required to pass a medical examination.

Applications, giving details of age, qualifications and experience, together with the names of two referees, should be addressed to Mr. A. Allen, Divisional Manager, West Midlands Gas Board, Warwickshire Division, Gas Street, Coventry, to reach him not later than 14 days after the appearance of this advertisement. Applicants are requested to quote reference T.P.3 when replying to this advertisement.

F. H. CURETON,
Secretary.

(Classified advertisements continued on Supplement 12)

Our readers are invited to an

EXHIBITION OF PHOTOGRAPHS

by Edward Brown, A.R.P.S,

Staff Photographer to the "GAS JOURNAL,"

at the

BUILDING CENTRE, 9, CONDUIT STREET, LONDON, W.1,

from November 10th—25th.

APPOINTMENTS VACANT (ctd.)

WEST MIDLANDS GAS BOARD

WARWICKSHIRE DIVISION.

DIVISIONAL CLERK OF WORKS AND PROGRESS ENGINEER.

APPLICATIONS are invited from suitably qualified persons for the above position, with headquarters at Coventry.

Candidates should be thoroughly experienced in building trades and civil engineering work, able to supervise the carrying out of contracts in connection with large extensions at gasworks and to keep up-to-date progress records of such work.

The commencing salary will be within the range of £645 to £770 per annum in accordance with Grade XII of the Salary Scales of the National Joint Council for Gas Staffs.

The appointment will be subject to the provisions of such a superannuation scheme as the Board may, in due course, adopt, and the successful candidate may be required to pass a medical examination.

Applications, giving details of age, qualifications and experience, together with the names of two referees, should be addressed to Mr. A. Allen, Divisional Manager, West Midlands Gas Board, Warwickshire Division, Gas Street, Coventry, to reach him not later than 14 days after the appearance of this advertisement. Applicants are requested to quote reference T.P.3 when replying to this advertisement.

F. H. CURETON,
Secretary.

WEST MIDLANDS GAS BOARD

WARWICKSHIRE DIVISION.

RUGBY DISTRICT.

DISTRIBUTION AND FITTINGS SUPERINTENDENT.

APPLICATIONS are invited from suitably qualified persons for the above position.

Candidates should possess the Institution of Gas Engineers Higher Grade Certificate in Gas Engineering (Supply) and have had extensive experience in both high and low pressure gas distribution and gas fitting. Experience in the preparation of drawings and estimates required in distribution work, including supplies for large industrial users, is essential.

The commencing salary will be within the range £570 to £670 per annum, in accordance with Grade X of the Salary Scales of the National Joint Council for Gas Staffs.

The appointment will be subject to such superannuation regulations as the Board may, in due course, adopt, and the successful candidate may be required to pass a medical examination.

Applications, giving details of age, qualifications and experience, together with the names of two referees, should be addressed to Mr. A. Allen, Divisional Manager, West Midlands Gas Board, Warwickshire Division, Gas Street, Coventry, to reach him not later than 14 days after the appearance of this advertisement. Applicants are requested to quote reference T.P.3 when replying to this advertisement.

F. H. CURETON,
Secretary.

WEST MIDLANDS GAS BOARD

WARWICKSHIRE DIVISION.

COVENTRY DISTRICT.
FITTINGS SUPERINTENDENT.

APPLICATIONS are invited from suitably qualified persons for the above position.

Candidates should possess the Institution of Gas Engineers Higher Grade Certificate in Gas Engineering (Supply), should have had considerable experience in gas fitting work and be capable of controlling a large fittings section. A sound knowledge of gas appliance maintenance and repair is essential.

The commencing salary will be within the range of £520 to £620 per annum, in accordance with Grade IX of the Salary Scales of the National Joint Council for Gas Staffs.

The appointment will be subject to such superannuation regulations as the Board may, in due course, adopt, and the successful candidate may be required to pass a medical exmination.

Applications, giving details of age, qualifications and experience, together with the name of two referees, should be addressed to Mr. A. Allen, Divisional Manager, West Midlands Gas Board, Warwickshire Division, Gas Street, Coventry, to reach him not later than 14 days after the appearance of this advertisement. Applicants are requested to quote reference T.P.3 when replying to this advertisement.

F. H. CURETON,
Secretary

CHIEF DRAUGHTSMAN AND ESTIMATOR required for foundry and engineering works in the Midlands. Thorough experience in the design and manufacture of gas purification plant desirable. Responsible position. Apply, stating age, experience and salary required, to No. 9937, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

THE Woodall-Duckham Co. require OPERATING ENGINEERS, age 21-25. Must have experience of operating gasworks and/or coke oven carbonising plant. Permanent jobs for suitable men. Apply in writing, giving particulars of age, education and experience, to the Personnel Officer, The Woodall-Duckham Co., 63-77, Brompton Road, London, S.W.3.

WORKS MANAGER, 35-45, required. Small works producing gas governors and meters. Crucible melting foundry (larger castings bought out), capstan and heavier machine shops, assembly, fitting and testing. Superannuation scheme. State age, experience, salary, and when available, to PEEBLES & Co., LTD., Tay Works, West Bowling Green Street, Edinburgh, 6.

WALES GAS BOARD

ENGINEER AND MANAGER OF THE EBBW VALE AND BEAUFORT UNDERTAKINGS.

THE Board are negotiating with the present owners for the acquisition of the Ebbw Vale Undertaking.

Applications are invited for the appointment of ENGINEER AND MANAGER of the Ebbw Vale and Beaufort Undertaking at a commencing salary of not less than £700 per annum, with free coal and 40,000 cu.ft. of gas annually. A house will be provided at a reasonable rental.

Both undertakings will be supplied with gas in bulk and the areas of supply are such that they will in fact constitute one undertaking.

Applicants must be capable of planning and carrying into effect substantial modifications to, and major extensions of, the gas distribution systems.

Also, it is essential that applicants shall be able to carry out successfully gas sales development, with the required administrative work, in an area where considerable scope for expansion exists.

Applications, giving details of age, qualifications and experience, together with the names of two referees, should be submitted to the undersigned not later than November 25, 1950.

C. B. MAWER,
Secretary.

1 and 2, Windsor Place,
Cardiff.

WALES GAS BOARD

BRIDGEND UNDERTAKING.

APPLICATIONS are invited from suitably qualified persons for the position of ENGINEER AND MANAGER to the Bridgend Undertaking. The undersigned will continue in his present position of General Manager and Secretary to the undertaking.

Applicants should possess the Higher Grade Certificate of the Institution of Gas Engineers (Supply and/or Manufacture), and have a sound administrative knowledge.

The commencing salary will be £650 per annum.

The successful applicant will be required to pass a medical examination and to subscribe to such scheme of superannuation as the Board may adopt in the future.

Applications, accompanied by the names of two referees, should reach the undersigned not later than December 2, 1950.

W. F. EDWARDS, F.C.I.S.,
General Manager and Secretary.

Wales Gas Board,
Bridgend Undertaking,
Bridgend,
Glam.

NORTH WESTERN GAS BOARD

LIVERPOOL UNDERTAKING.

A VACANCY exists for a JUNIOR MALE ASSISTANT in the Domestic Gas Appliances Testing Department.

Applicants should have the School Certificate or Higher School Certificate with physics, chemistry or mathematics, and one who has completed his National Service training is preferred.

The salary will be £200 a year at age 20, rising by annual increment to £370.

Applications should be made by letter addressed to the Chief Personnel Officer, Radiant House, Bold Street, Liverpool, 1.

NORTH WESTERN GAS BOARD

PRESTON GROUP.
PRESTON DISTRICT.
INSTALLATIONS OFFICER.

APPLICATIONS are invited for the position of INSTALLATIONS OFFICER for the Preston District.

Candidates should hold the Higher Grade Certificate in Gas Engineering (Supply) and the First Class Final City and Guilds Certificate in Gas Fitting or Plumbing.

The successful applicant will be responsible under the Group Sales and Service Officer for the organisation and control of fittings and maintenance staff and workshop personnel engaged upon the installation and maintenance of gas appliances.

The salary will be in accordance with Grade A.P.T. X (£570-£670) of the National Salary Scales, the stage on this scale to be commensurate with experience.

The successful applicant may be required to pass a medical examination, and to subscribe to such scheme of superannuation as the Board may adopt.

Applications, stating age, training and present position, qualifications and experience, together with two Testimonials, should be forwarded to the undersigned to arrive not later than 12 days following the date of publication of this advertisement.

A. K. COLLINGE,
General Manager.

108, Fishergate,
Preston Lancs.

NORTH WESTERN GAS BOARD

SOUTH LANCASHIRE GROUP.
WIDNES DISTRICT.
DISTRICT DISTRIBUTING ENGINEER.

APPLICATIONS are invited from suitably qualified and experienced persons for the above position.

The successful applicant will be responsible to the Group Distributing Engineer for all branches of distributing work as required.

The commencing salary will be within the range of £510-£570 per annum, according to experience and qualifications.

The successful applicant may be required to pass a medical examination, and to subscribe to such scheme of superannuation as the Board may adopt.

Applications, appropriately endorsed and giving personal details, particulars of training, qualifications and experience, and accompanied by *copies* of two recent Testimonials should reach the undersigned not later than 12 days after the publication of this advertisement.

R. L. GREAVES,
General Manager.

Radiant House,
St. Helens,
Lancs.

NORTH WESTERN GAS BOARD

SOUTH LANCASHIRE GROUP.
WARRINGTON DISTRICT.
DISTRICT SERVICE MANAGER.

APPLICATIONS are invited from suitably qualified and experienced persons for the above position.

The successful applicant will be responsible for all branches of consumer service including the control of the gas fitting and maintenance staff and the supervision of showrooms.

The commencing salary will be within the range of £620-£670 per annum, according to experience and qualifications.

The successful applicant may be required to pass a medical examination, and to subscribe to such scheme of superannuation as the Board may adopt.

Applications, appropriately endorsed and giving personal details, particulars of training, qualifications and experience, and accompanied by *copies* of two recent Testimonials, should reach the undersigned not later than 12 days after the publication of this advertisement.

R. L. GREAVES,
General Manager.

Radiant House,
St. Helens,
Lancs.

APPLICATIONS are invited from CHEMICAL ENGINEERS, preferably under 35, with industrial experience, to fill vacancies in a prominent firm manufacturing heavy chemicals in the Midlands. The appointments are in the first instance for development and investigational work in connection with process efficiency. Knowledge of steam generation and utilisation and/or furnace design and operation will be an advantage.

Salary according to qualifications and experience. Superannuation scheme.

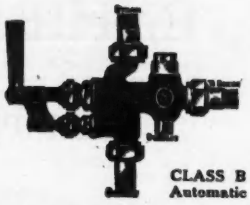
No. 9933, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

REPAIRS

BRIGHT, SON & CO.
(CLERKENWELL) LTD.
FOR PUBLIC LIGHTING.
CLOCK CONTROLLER REPAIRS.
20 Northburgh St. Clerkenwell, E.C.1. Clerkenwell 7171. and at **17 & 18, Gt. Sutton St. Clerkenwell, E.C.1. London Wall 0267.**

PAYNE & FLOOD, LTD., 182, Oldham Road, Manchester, 4. Phone Col. 1393, are in a position to undertake all types CARBONIZING PLANT REPAIRS, Retort House Reconstruction. Producer Relinings. Hot and Cold Patching. Structural Steelwork Erected and Dismantled. Expert advice available

BUFFALO INJECTOR
(British Made)

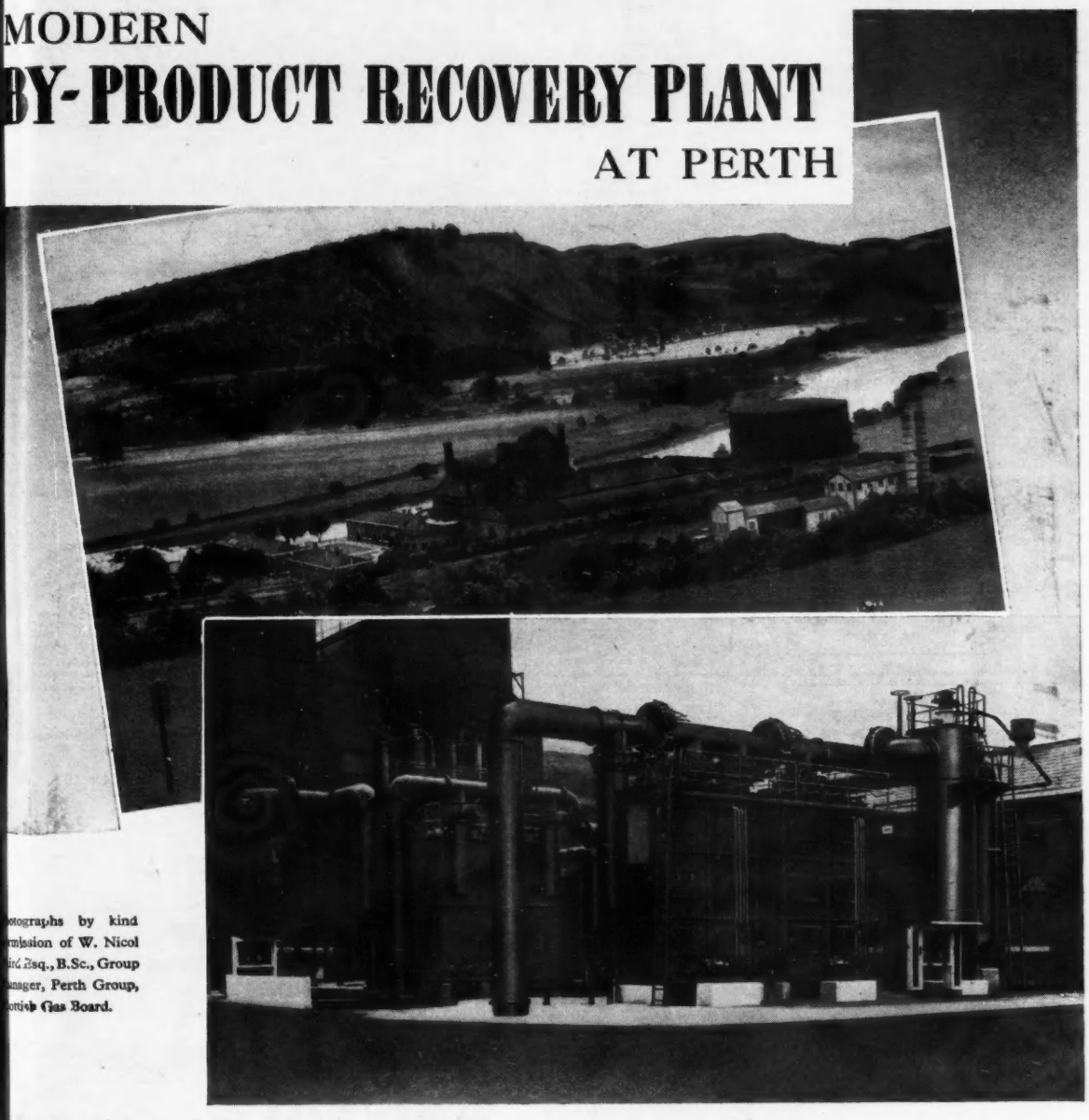


CLASS B
Automatic

Operated entirely by one handle

GREEN & BOULDING, LTD.
162a, DALSTON LANE, LONDON, E.8

MODERN BY-PRODUCT RECOVERY PLANT AT PERTH



Photographs by kind permission of W. Nicol Bird, Esq., B.Sc., Group Manager, Perth Group, Scottish Gas Board.

FOUNDED 1856
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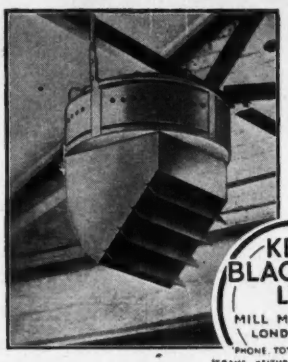

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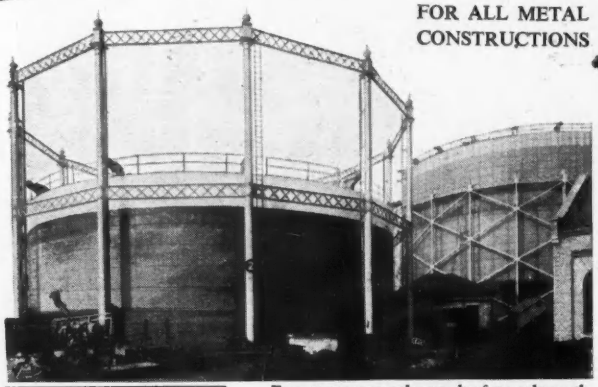

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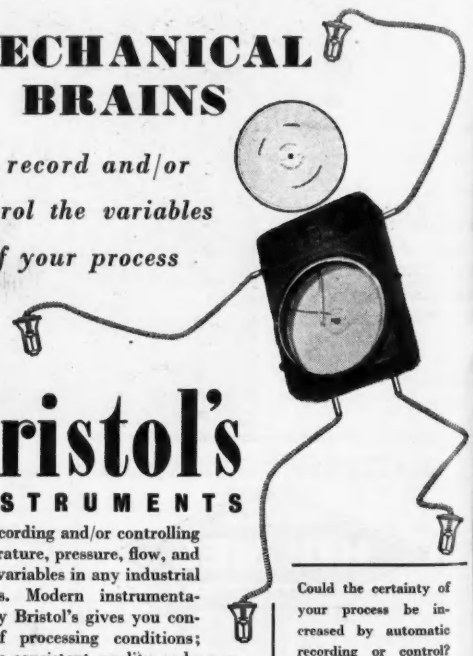

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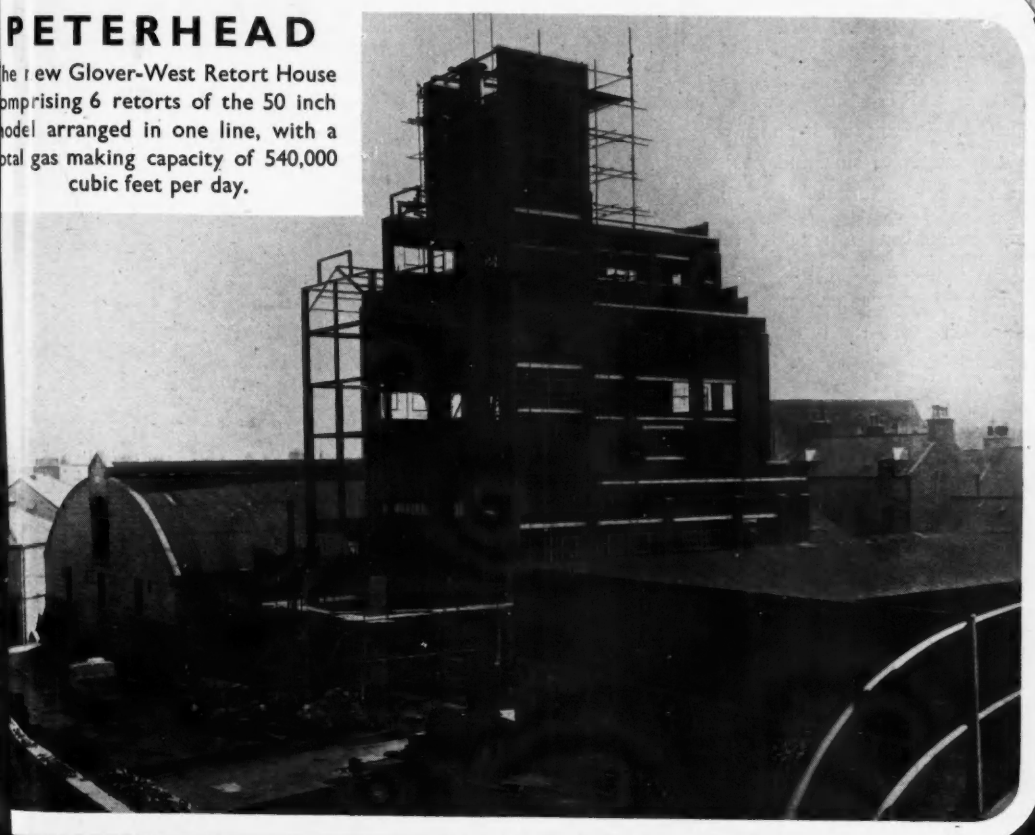

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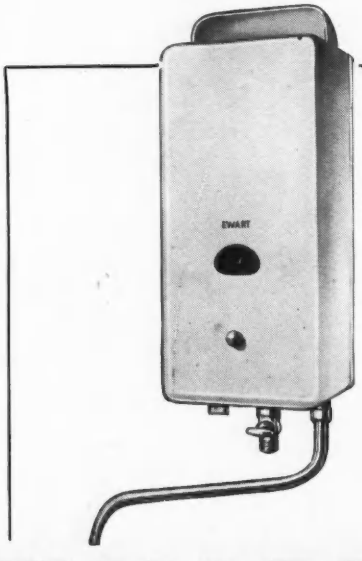

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